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ABSTRACT

This report, comprised of five separate reports, presents a set of statistical benchmarks for gauging the growth and development of corporate training and education over the last decade. "Summary Findings" (Robert Zemsky) presents in capsule form the technical analyses of the findings of the other four reports. It considers these questions: how much has corporate training and education increased? who gets trained and why? what is the link between training and compensation? and does training promote employment stability? Part Two, "Trends in Employer-Sponsored Education and Training: 1969-1978" (Michael L. Tierney), presents the technical analyses of the four questions, in the form of an analysis of the survey of adult education, 1969 through 1978. It discusses the total volume of employer-sponsored education and training, attributes of employer-sponsored courses, demographic attributes of participants, and the labor force attributes of participants. "Employer-Provided Education and Training in 1981" (Michael L. Tierney) is an analysis of the 1981 survey of adult education. "The Impact of Corporate Education and Training on Earnings and Employment" (Michael L. Tierney) is a modeling of the relationship between wages and training and between employment stability and training. "Company Training, Employment Stability, and Employers' Needs and Practices" (Ivar Berg and Janice Shack-Marquez) is an analysis of three additional national surveys of work and training experiences--the Panel Study of Income Dynamics, the new National Longitudinal Survey of Youths, and the National Longitudinal Study of the High School Class of 1972. (YLB)

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TRAINING'S BENCHMARKS

A STATISTICAL SKETCH OF EMPLOYER-PROVIDED TRAINING AND EDUCATION: 1969 - 1981

TASK I REPORT:

THE IMPACT OF PUBLIC POLICY ON EDUCATION AND TRAINING IN THE PRIVATE SECTOR

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U.S. DEPARTMENT OF EDUCATION
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SUMMARY FINDINGS

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June 1983

In a recent editorial Business Week conceded that "panic has set in over what to do with the unemployed." It was no longer a question of those who could not or would not work, the displaced and undisciplined, but the core of the American labor force, those who had spent their adult lives in productive employment. It was not just the magnitude of the nation's dilemma, but its seeming intractability. One could hope "the newly displaced may be rescued by some hot new industry that absorbs large numbers of unskilled and semiskilled workers" but "we dare not assume that something will turn up." Then Business Week got to the nub of the matter; under the title "Retraining Policy: First the Facts," Business Week laments, "the trouble is, no one knows what to do, partly because no one knows what is going on."

This report to the National Institute of Education is a first attempt to provide some of those basic facts Business Week and others have called for as the nation contemplates substantial investments in training programs to fit the American workforce to the demands of the new technologies. In this project we seek an understanding of what corporate America now thinks about training and education. What are its benefits? How do successful firms organize themselves to train their workers? How much has training and education changed with the introduction of the new technologies? How

well are these firms prepared to become instruments of a national policy designed to upgrade the skills of the American workforce?

In this first report, we present a set of statistical benchmarks for gauging the growth and development of corporate training and education over the last decade. In subsequent reports to the National Institute of Education, we will focus on how firms currently organize and justify their investments in training; how public policy in the past has, and in the future might, influence corporate training and education; and finally, the implications of these developments for both the suppliers and the consumers of postsecondary education. It is, however, this first report on statistical trends in employer-provided and paid training and education that establishes the framework of our research--it is, simply put, a matter of getting "first the facts."

FIRST QUESTIONS, FIRST ANSWERS

Many observers have argued that over the last decade there has been a fundamental shift in the provision of educational services: a shift from traditional to non-traditional education and a shift from public to private providers, as corporations in particular have assumed increasing responsibility for the training of their own

employees. Peter Drucker said it best when he observed, "demand for education is actually going up not down. What is going down, and fairly fast, is demand for traditional education in traditional institutions." Implicit in such observations is an assumption that American businesses are now more willing to play a direct role in the basic education of their employees. Our first question is a test of this assumption:

How much has corporate training and education increased over the last decade?

Traditionally, we have sought answers to this question by measuring growth in terms of increased expense. The debate over the future direction and purpose of corporate training and education is filled with estimates of the annual private training expenses that range from a low of $2 billion to a high of $100 billion per year. Based on our analysis of these estimates and our examination of well-established training programs at twenty firms, we can state categorically that estimates of the total annual expense by corporations for the training and education of their employees are simply not reliable. Indeed we view with deep skepticism any data proporting to measure total corporate training and education in dollar terms.

The problem is not so much that firms, when asked, will not report their annual expenses for training. Rather most firms simply do not know the answer to that question. If pressed, most comptrollers can document the direct expense for training in terms of travel, supplies, tuition remissions, consultants, and vendors. They can probably estimate the amount of direct personnel cost associated with their training departments, though comptrollers are the first to tell you training personnel often have other responsibilities as well. Instructional cost, when the instructor is not a trainer but a manager, technician, or supervisor, is seldom included in the accounting. Nor, for that matter, are the salaries of the trainees often included in the estimate of training costs. Almost never is the training function assigned its fair share of the firm's space or other overhead costs. In highly decentralized firms these problems are further compounded. The costs of corporate training staffs and central training facilities are known, but the training programs of individual plants and subsidiaries are seldom identified as separate items of expense.

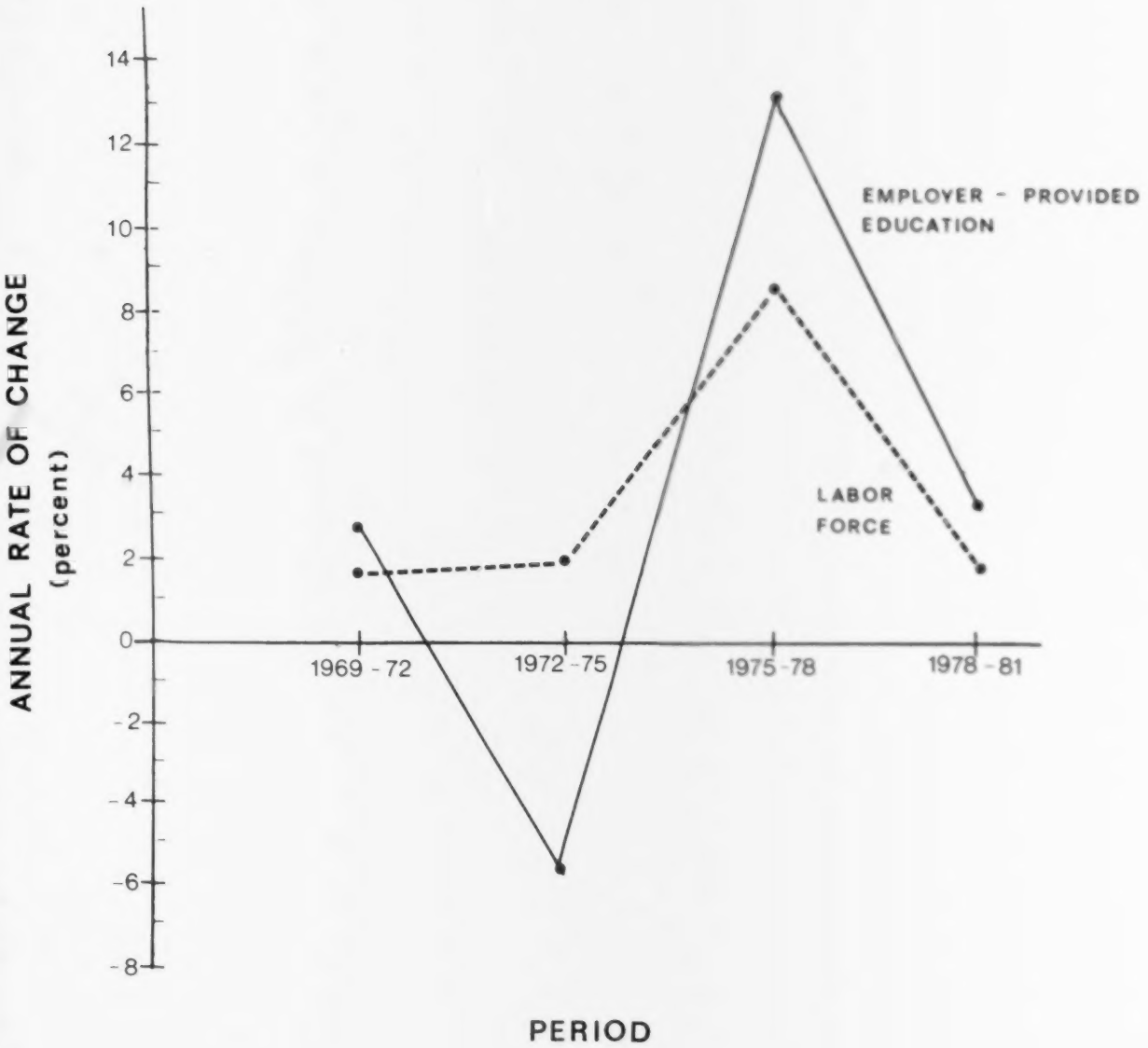
To gauge the actual growth of corporate training and education over the last decade, we have chosen to focus instead on estimates of the number of workers being trained. Our principal data source is the triennial survey

of adult education conducted by the Bureau of the Census as part of its Current Population Surveys (CPS). Conducted each May, the CPS represent multi-staged stratified samples of the United States population. The survey of adult education was included in the May CPS for the years 1969 (8,942 respondents), 1972 (9,409 respondents), 1975 (9,713 respondents), 1978 (11,097 respondents), and 1981 (9,081 respondents) out of the approximately 50,000 sampled households. Respondents reporting participation in adult education were then asked to fill out a supplementary questionnaire detailing the nature of their participation in a formal education or training program: why the respondent participated, where the courses were offered, who paid for the education or training, and something about its broad subject content. While basic characteristics of both the sample design and the questionnaire have remained constant since 1969, special efforts to increase the response to the supplemental questionnaire in 1981 have made some detailed comparisons over time more difficult and in that sense less reliable.

Michael Tierney's analysis of the number of privately employed persons reporting the receipt of employer-provided education or training--as distinct from employer-paid education in a traditional educational setting or on-the-job training--yields four basic conclusions (Figure 1).

FIGURE 1

RATES OF GROWTH IN PRIVATE EMPLOYER-PROVIDED EDUCATION AND THE PRIVATE LABOR FORCE



- Employer-provided education has increased an average of 3.3 percent per year since 1969.

- That growth is largely a product of the growth in the labor force itself. While the number of employees being trained directly by their employers has increased, the proportion of employees receiving such training has not.

- The susceptibility of employer-provided training to the business cycle is clear, as evidenced by the sharp decline in training reported in 1975 and the even sharper increase in training reported at the height of the recovery of 1978.

- Despite popular beliefs to the contrary, we see no dramatic increase in the overall incidence of private, employer-provided training and education. In this regard it is important to note that in this same period the incidence of government-supplied training to its employees increased at an annual rate of 5.7 percent per year and the proportion of government employees receiving such training increased from 7 percent to 9 percent over the twelve-year period.

The scope and distribution of employer-provided training and education are as important as its scale. The May 1981 survey of adult education, precisely because of a 96 percent return on the supplemental questionnaire, provides a detailed set of answers to our second question:

Who gets trained and why?

Within many large corporations, responsibility for training and responsibility for equal employment opportunity

programs are often vested in the same key personnel. Many believe that affirmative action programs were responsible for a significant portion of the increase in employer-provided training. The 1981 data suggest that these affirmative action programs have had quite different impacts on the training opportunities offered to targeted groups.

- Even when education and age were taken into account, non-whites, particularly those with minimal levels of schooling, received significantly less training than similarly schooled whites in the same age group. Overall, whites employed by private firms were twice as likely to receive firm-provided training as were similarly employed non-whites. Just as important, non-whites employed by public agencies were twice as likely to receive formal training at work as were non-whites employed by private firms.

- By 1981 women, on the other hand, received training at nearly the same rate as their male counterparts in private firms, a fundamental shift in the distribution of employer-provided training from 1969 to 1981.

The links between employer-provided training and the employee's previous education and current occupation reflect the same basic pattern.

- College graduates were more than twice as likely as high school graduates to receive additional training from a private employer.

- Nearly one in ten employees with a professional or technical occupation received employer-provided training, one in seventeen managers, and one in twenty craftsmen. Only slightly more than one in fifty of the remaining workers reported receiving formal training from a private employer.

Finally, there is an equally important relationship between the age structure of the workforce and the distribution of training.

- The most frequently trained workers were between the ages of 25 and 34, suggesting that firms do not begin making substantial investments in employees until their education is complete or they have demonstrated maturity within the firm.

- Indeed, young workers between the ages of 17 and 24 receive less than half of the training given workers between the ages of 25 and 34, and the only workers to receive less training than these young workers were employees 55 years or older.

- The young worker had twice the probability of receiving training from a public employer as from a private firm.

When queried as to the reasons for receiving formal training, respondents to the May 1981 survey of adult education reflected the dual nature of much of the training supplied by American businesses to their employees. Here we exclude what is traditionally called "on-the-job training." For our purposes employer-provided training and education involves the teaching of skills to employees outside of the regular work routine, either during or after hours. In defining corporate training and education as the teaching of skills, we have in mind more of a continuum than a category. At one end is the teaching of highly technical skills, either general or job-specific, including such traditional categories as systems engineering, accounting,

computer programming, technical or expository writing, machining, the repair of a particular instrument, how to use a particular form or procedure. At the other end of the spectrum are benavioral or people skills, the content of the numan relations and organizational development courses--what the trainers often refer to as "coacning and counseling"--that have become a staple of many corporate training and education programs.

The lengthier and more complex the training course, the more likely it will include aspects of both technical and behavioral skills teaching. Typically, sales training involves botn introductory accounting and corporate financing--it is necessary to know how the client is likely to pay for the product--as well as discussions of personal motivation, style, and comportment. Even the most rigorous engineering courses will frequently have a component for professional development, explaining how to use technical skills to build a better future within the company. Any given corporate training program will, therefore, have two extremes: one marking the maximum level of technical proficiency sought, and tne other marking the maximum level of behavioral proficiency sought. Each training program will balance between the two; that is, the course or program will tilt towards the tecnnical or pitch towards the behavioral.

In 1981 respondents to the survey of adult education who reported participating in a formal program of employer-provided training described the scope of those activities as follows.

- Only 20 percent of such training was classified as relating to "engineering and engineering technology; computer science and data processing; etc...."
- Nearly 40 percent was characterized as "business," presumably including a mix of technical business training and behavioral management training.
- The remaining 40 percent was predominantly classified as "health care and health sciences."
- Communication and arithmetic/mathematical skills accounted for less than 3 percent of private employer provided training.

In describing why they participated in such training programs, responding employees of private firms made a sharp distinction between their "first course" and all subsequent courses.

- First-course training programs were overwhelmingly job and occupation specific. More than 80 percent reported the first course was to "improve, advance, or keep up to date in my current job."
- Only 5 percent reported first-course training was to "train for an occupational field I had not worked in previously," that is, retraining.

Just over a third of these workers reported participating in at least one additional employer-provided formal training course.

- A third of these workers participating in a second employer-provided course did so not for job related but for "personal or social" reasons.
- A maximum of 10 percent of the enrollments in these second courses could be said to fit the retraining pattern.

Traditionally, Americans have expected increased skills and competencies to result in increased wages. Thus our third question asks

What is the link between training and compensation?

Here we have to be careful not to confuse cause and effect. The 1981 survey of adult education is a cross sectional rather than a longitudinal sample of individuals. What Tierney measured was the extent to which training and increased compensation covaried even when controlling for age, gender, previous education, ethnicity, and industry.

- For professionals there was a remarkably strong positive relationship between increased wages and increased employer-provided and employer-paid training.
- For craftsmen there was a similarly strong positive relationship between increased wages and training but only for that directly provided by the employer.
- For managers there appeared to be no link between training opportunities and increased wages, suggesting that management training in particular is viewed as necessary to perform current jobs rather than to advance to a new job or pay scale.

Finally, we return to the question which most concerned Business Week, the link between training and employment:

Does training promote employment stability?

For this discussion, in addition to Tierney's analysis of the survey of adult education, we have Ivar Berg's and Janice Shack-Marquez's analysis of three additional national surveys of work and training experiences: the Panel Study of Income Dynamics (PSID) which includes a national sample of American families surveyed annually from 1968 to 1979; the new National Longitudinal Survey of Youths (NLS) which includes a national sample of young people, 14 to 22 years of age in 1979; and the National Longitudinal Study of the High School Class of 1972 which includes a random sample of male 1972 high school graduates. Like our estimates of the growth of employer-provided training and education, our analysis of the link between training and employment stability goes against the common wisdom.

- In none of our analyses do we find reason to conclude that training in or of itself promotes employment stability. As Berg and Shack-Marquez report, "company training is . . . not a significant predictor of job separation. This result implies that firm-specific training, controlling for human capital and labor market characteristics, does not lead to lower quit or fire rates as suggested by one widely held theory."

- The level and incidence of training tends to follow the business cycle (see Figure 1, above), suggesting that most firms decrease their training expenditures faster than they decrease their workforces during a recession--a finding confirmed by both our analysis of training programs in large firms and among small firms in three Michigan counties.

- There is a strong suggestion in Tierney's analysis of the CPS data that training, particularly for managers, professionals, and craftsmen, is given first to those least likely to be laid off, indicating, as Berg and Shack-Marquez confirm in their analyses, that those employees who are most stable are also the recipients of company training.

These summary findings report in capsule form the technical analyses performed by Professor Tierney and by Professor Berg and his colleague Janice Shack-Marquez. Section Two of this report presents these technical analyses, beginning with Tierney's analysis of the survey of adult education 1969 through 1978 (as specified in our initial proposal to the National Institute of Education). Next are Tierney's analysis of the 1981 survey of adult education and his modeling of the relationship between wages and training and between employment stability and training. The report concludes with Berg's and Shack-Marquez's analyses of the additional data collections.

TRENDS IN EMPLOYER-SPONSORED EDUCATION AND TRAINING: 1969 - 1978

Michael L. Tierney

University of Pennsylvania

September 1982

I. Introduction

Increasing concern about the ability of American firms to compete in world markets under adverse economic conditions has stimulated interest in the skills and flexibility of the American labor force. Attention is now being focused on identifying what skills are required to meet the challenge of changing technology in an uncertain economy and how these skills are acquired. If traditional educational institutions are failing to adjust quickly to needs for different skills, then firms can be expected to provide an increasing proportion of the education and training themselves.

In this Technical Report for Task I, we describe the nature and extent of employer-sponsored education and training programs as reported by employees on the Adult Education Supplement, May, of the Current Population Surveys conducted by the Census Bureau for the period 1969 through 1978. The report does not include traditional "on-the-job training," but defines corporate training and education as the teaching of skills to employees outside the regular work routine, either during or after business hours. This focus should not be interpreted as denying the importance of informal programs. If anything, a clear need for determining the nature and extent of these informal programs is identified.

Four basic questions are addressed in this paper:

1. What is the total volume of corporate education and training programs?

   a. How many individuals are enrolled?
   b. How many hours are spent in class?
   c. How many weeks do the courses last?

2. What are the characteristics of the employer-sponsored education and training courses?

   a. What types of courses are offered?
   b. Why do people take the courses?
   c. Where are the courses given?

3. Who receives this formal training?

   a. How old are the recipients?
   b. What is their ethnicity and sex?
   c. Are these more or less educated persons?

4. Are employer-sponsored programs concentrated in specific industries and professions and if so, which ones?

We are aware that many of our findings go against a conventional wisdom that holds that corporate education and training programs increased dramatically in the 1970s. It is, therefore, with a proper sense of tentativeness that we present our analysis which has been formally reviewed by the Project staff and informally reviewed by key members of the training community and individual staff within the National Institute of Education. We have also had extended conversations with staff at the National Center for Educational Statistics and the Bureau of the Census receiving the validity of the data and further means of testing the respondent's perception of the questions being asked. Finally we note that Professor James Medoff, in his preliminary

discussion of labor market inbalances, included similar CPS based findings in his presentation. Nonetheless, we have retained a healthy skeptism towards our work and plan to test further our conclusions as part of our twenty case studies and in our analysis of the 1981 data which has just become available.

II. Data and Methodology

A. Data

In order to provide estimates of the nature and extent of formal, employer-sponsored education and training, analyses were performed on data collected triennially by the Bureau of the Census for the period 1969 through 1978. For the purpose of this study, the population is restricted to civilian, non-institutionalized persons over the age of 16 who are not full-time students in high school or college. This latter restriction is required to maintain comparability in the May Current Population Survey (CPS) sample over this period.

More specifically, the sample used for the development of these measures of employer-sponsored education and training are the Current Population Surveys (CPS) for May of the Bureau of the Census, 1969 to 1978. The various Current Population Surveys were samples originally drawn to provide reliable data on the United States labor force. Present Current Population Surveys extend substantially

beyond this original purpose to include data on adult education (May).

The May Current Population Surveys are multi-stage, stratified samples of the United States population. The first stage involves the division of the United States into counties or groups of counties called primary sampling units, which are grouped into homogeneous strata. The stratifying variables (e.g., whether or not the county is within a Standard Metropolitan Statistical Area, percentage of the population employed in manufacturing, average per capita value of retail trade, etc.) were originally selected to maximize the reliability of various labor force estimates. Given the dependence of employer-sponsored education and training on similar labor market factors, estimates of employer-sponsored education and training from the May CPS are likely to be fairly reliable.

Within each primary sampling unit selected, a self-weighting probability sample of housing units is developed. According to the Bureau of the Census, a "housing unit is a group of rooms or a single room, occupied or intended for occupancy as separate living quarters" (Bureau of the Census 1978, p. 15). The major means for representing these housing units is the address register for each of 229,000 enumeration districts in the United States. Clearly, the quality of the survey is dependent upon the adequacy of

this address register. Based upon this address register, a sample of approximately 50,000 households is drawn.

Table 1 displays the sample sizes and population estimates for each of the four May Current Population Surveys. From the 50,000 or so households drawn in the survey, data on 11,097 adult education participants were derived in 1978. It should be noted that data on the individuals within a sampled household typically is supplied to the interviewer by one person who was at home when the interviewer scheduled the interview. Thus, the accuracy of the data is dependent, in part, upon the interviewee's knowledge of the activities of each member of the household.

While the sample size is in excess of 8,900 individuals, the Bureau of the Census has developed a set of weights for inflating each sample to an estimate of current population (Bureau of the Census 1978, Chapter V). These weights, which control for region, sex, and race, are employed without modification in this study. Thus, in 1978, the 11,097 individuals in the survey represented a population of 15,942,000. It should be noted that the Bureau of the Census advises against relying upon data in which there are fewer than 75,000 weighted observations. In this study, weighted sample sizes of less than 75,000 are reported but should be interpreted with extreme caution.

Table 1

Sample Size and Population Estimates
Current Population Survey
May Supplement

	1969	1972	1975	1978
Sample of Adult Education Participants	8,942	9,409	9,713	11,097
Estimated Population of Adult Education Participants (in thousands)	13,039	15,732	14,968	15,942

Sources of Under-enumeration. A number of persons have expressed concern over the size of the potential under-count in the May CPS. While the following estimates of employer-sponsored education and training are conservative, we have no reason to believe that this under-enumeration is systematic across time. In our opinion, a plausible argument as to why the under-count would increase with each succeeding May CPS has not been developed.

There are four sources of under-enumeration in the May CPS. First and most obvious are sampling and non-sampling errors associated with the survey. It is for this reason that the Bureau of the Census discourage using estimates for which the weighted sample size is less than 75,000.

The second source of under-enumeration is simply a questionnaire non-response. Specifically, a person may indicate that they were involved in some type of adult education activity but fail to return the supplemental questionnaire. In 1978, the only year for which we are able to make an estimate, a total of 14,405 surveyed persons indicated some type of involvement in adult education, but only 11,097 returned the questionnaires. Thus, subsequent estimates could be low by as much as 20 percent for this reason alone.

Third, the person at home at the time of the survey may not have responded positively to any of the six "trigger" questions in the primary May instrument, even though a member of the household did, in fact, participate in such an activity. For instance, the person at home during the interview may not have known that his/her spouse had been involved in an employer-sponsored program, and thus not respond affirmatively to any of the "trigger" questions. The amount of the under-count associated with this source is impossible to estimate. Even the "new" methodology employed in the 1981 May survey does not control for this possibility.

Finally, persons involved in employer-sponsored education and training may not recognize it as such. For instance, an employee participating in a "team-building" program at his/her firm may not consider this type of

activity as education and training. Thus, even though the firm sets aside a certain number of hours per week for these formal activities, the respondent does not report it.

B. Methodology

Task I of the project is concerned with describing the existing data on employer-sponsored education and training. The method chosen was to present frequency distributions on various characteristics of interest. Data in this technical report are grouped into two broad categories--individual and labor force attributes. Individual attributes include sex, race, age, and level of education. Labor force attributes of the individuals include occupation and industry in which they are employed. Only those individuals reporting that the education or training they received was provided directly by the firm employing them or paid for all or in part by their employer, are included in the sample.

III. Results

This section of the report is divided into four parts. In part one, an analysis of the total volume of employer-sponsored education and training is conducted. A variety of volume measures are examined--participants, courses, and the length of time associated with each course. In part two, various attributes of these employer-sponsored courses are studied, especially the type of course, the individual's

reason for taking it, completion status, and where it was offered. In part three, the demographic attributes of participants are displayed (the gender, ethnicity, age, and educational characteristics) for persons involved in employer-sponsored education and training. Finally, part four presents the labor force attributes of participants. In what occupation and industries are they to be found? In this last section, an attempt will be made to assess the factors underlying the growth in employer-sponsored education and training.

A. The Volume of Employer-Sponsored Education and Training

One area of concern surrounding employer-sponsored education involves how much activity is taking place. Total activity can be measured in a variety of ways--number of individual participants, total course enrollments, and number of hours devoted to education and training. The following discussion examines each of these possibilities.

Table 2 presents various measures of employer-sponsored education and training. In examining this table, several facts should be borne in mind. Each survey respondent is asked to indicate the number of courses in which he/she is enrolled. For all 1978 adult education participants, 67.0 percent enroll in just one course, 18.5 percent in two courses, 7.4 percent in three courses, and 7.1 percent in four or more courses. Consequently, it is necessary to

Table 2

Total Volume of Employer-Sponsored Education and Training, 1969-1978

	Private Employer								Government Employer								Total			
	Provided				Paid				Provided				Paid							
	69	72	75	78	69	72	75	78	69	72	75	78	69	72	75	78	69	72	75	78
First Course																				
Enrollment (in thousands)	1435	1556	1314	1793	994	1160	1309	1223	501	584	500	885	448	508	571	346	3378	3808	3694	4247
Wks	16.2	13.4	8.0	8.8	9.6	15.4	9.2	11.8	13.3	9.3	5.1	7.6	7.4	12.0	7.4	11.0	14.9	13.2	8.0	9.6
Hrs/Wk	15.5	15.3	15.6	15.1	15.8	10.8	10.2	10.8	14.8	16.4	15.3	15.2	11.4	11.6	13.3	13.1	13.4	13.6	13.3	13.7
Second Course																				
Enrollment (in thousands)	250	302	252	470	318	433	486	408	100	172	140	331	163	198	241	164	831	1105	1119	1373
Wks	10.6	8.3	6.3	6.7	13.4	12.0	8.3	12.0	10.6	7.3	6.0	6.7	10.1	9.3	6.9	11.3	11.7	9.8	7.3	8.9
Hrs/Wk	14.7	14.4	14.9	14.2	9.2	8.5	10.0	8.3	14.7	14.2	14.8	13.4	9.6	10.8	11.2	11.0	11.6	11.4	11.9	11.9
Third Course																				
Enrollment (in thousands)	72	112	99	199	154	180	215	185	45	83	87	143	75	84	99	62	346	459	500	589
Wks	7.5	6.3	3.8	7.2	12.7	10.2	8.8	9.8	7.5	6.6	4.3	14.3	8.5	10.0	7.5	9.0	11.0	8.5	6.7	8.9
Hrs/Wk	12.3	16.9	17.0	12.8	9.0	8.8	9.3	10.4	12.3	10.3	15.1	3.4	12.0	11.7	11.1	13.1	10.1	11.6	12.2	11.2
Total, First Three Courses																				
Enrollment (in thousands)	1757	1970	1665	2464	1446	1773	2010	1816	646	836	727	1359	686	790	911	572	4535	5372	5313	6209
Wks	15.0	12.2	7.5	8.3	14.9	13.0	8.9	11.5	13.0	8.6	5.2	7.4	10.4	11.1	7.3	7.0	14.0	12.1	7.5	9.4
Hrs/Wk	15.2	15.2	15.6	14.7	9.5	9.4	10.0	10.2	14.6	15.3	15.2	14.6	11.0	11.4	12.9	12.5	12.6	13.0	12.9	13.1

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classify each course into one of the four employer-sponsored training programs. Note that the number of participants enrolled in the third course either approaches or falls below the 75,000 weighted sample size threshold.

When course enrollments are totaled for these three courses, it is possible that multiple course enrollments of single individuals are being aggregated. For instance, the 1,757,000 enrollments in the first three private, employer-sponsored courses may either represent 1,757,000 different individuals or successively smaller subsets of the 1,435,000 individuals who enrolled in the first course enrolling in two or three courses. Investigation of these two possibilities (not displayed) reveals that approximately 90 percent of the total course enrollments are attributable to multiple course enrollments of those individuals who enroll in the first course. For this reason, analyses in the last two parts of this report will be limited to first course participants only.

Four conclusions can be drawn from an examination of Table 2. First, total course enrollments increased from 4,535,000 to 6,211,000 over the ten year period, or an average annual rate of increase of 3.2 percent. If only enrollments in the first course are considered (and consequently unduplicated counts of individual employees), the ten-year annual growth rate is 2.3 percent. During this same period, the total number of persons employed in the

United States economy grew at an average annual rate of 2.5 percent (Table 17). Thus, it would appear that the growth in employer-sponsored education and training has grown slightly less rapidly than the overall growth in employed persons.

Second, most of the growth in employed persons education and training has occurred in employer-provided training. Over this ten-year period, employer-provided training grew at an average annual rate of 4.8 percent while employer-paid enrollments grew at an average annual rate of 1.1 percent. Note, however, government-provided enrollments grew at a faster (7.7 percent) annual rate as opposed to private, employer-provided training (3.4 percent). On the other hand, private employer-paid enrollments have increased at about the same rate as the growth in total United States employment while government employer-paid enrollments has actually declined during this period.

While the growth in participants and total course enrollments is fairly clear, questions surround the total number of hours devoted to these various types of activities. It would appear that the average number of weeks that a course is scheduled follows a quadratic functional form. However, the Bureau of the Census truncated the total number of weeks possible at 52 in 1975 and 1978 but allowed up to 156 weeks in 1969 and 1972. Thus, part of the change in average weeks per course could be attributed to this truncation.

The average hours per week within the four categories of employer-sponsored training appears to be fairly stable over this period. If the average number of weeks variable accurately reflects employer-sponsored programs, these data taken together suggest a decrease in the total number of hours of employer-sponsored education and training programs in the mid-1970s with a slight resurgence in 1978.

Finally, total course enrollments dip in 1975 for every category of employer-sponsored education and training. This pattern strongly suggests the role of business cycles in these programs. Changes in the level of unemployment could cause shifts in the demand for labor, thereby reducing any extant shortage of labor. Because respondents were asked to report their education and training activities for the previous year, this would place May 1975 respondents in the middle of the 1973-1974 recession. Thus, there is evidence to suggest that one of the factors underlying change in the amount of employer-sponsored education and training is the level of aggregate unemployment. Such a conclusion is tentative, given that only one recession year is included in this time series.

In summary, the preceding analyses indicate that:

- Individual participants in employer-sponsored education and training have increased over the ten year period, 1969-1978. This increase is slightly less than the overall growth rate of employed persons in the United States economy.

- Individuals involved in these programs tend to take more than one employer-sponsored course, thereby resulting in a somewhat more rapid increase in total employer-sponsored course enrollments than would be expected due to the growth in total employed persons.

- Not only are individual participants involved in more than one course, but there appears to be a slight resurgence in the total number of hours devoted to employer-sponsored education and training in 1978.

- Finally, there is some suggestion that one of the factors underlying the growth of employer-sponsored education and training is the aggregate level of unemployment.

B. Employer-Sponsored Course Activity

Having identified the various components of the growth in employer-sponsored education and training over the period 1969-1978, it is informative to understand some of the characteristics of these courses.

Tables 3 and 4 display the type of courses provided by or at least partially paid for by employers, respectively. (Unfortunately, the Bureau of the Census discontinued its use of this typology and developed a more systematic subject matter coding scheme in 1978. The results of this new coding scheme will be provided in Tables 5 and 6.) For instance, 40.9 percent of the individuals employed by private firms in 1969 indicated that their first course was designed to provide technical or vocational skills. For government employees, a slightly lower percentage of 36.5 percent is reported.

Table 3

Type of Employer-Provided
Course Activity
Private/Government
(Percent)

	Year	
First Course	1969	1975
Technical or Vocational Skills	40.9/36.5	36.4/22.4
Managerial Skills	20.4/14.2	20.6/19.3
Professional Skills	21.2/29.2	28.0/41.4
All Others	17.5/20.1	15.0/16.9
Second Course		
Technical or Vocational Skills	35.9/27.6	32.8/13.4
Managerial Skills	21.7/21.8	22.7/21.8
Professional Skills	30.2/28.0	33.4/48.0
All Others	12.2/22.6	11.1/16.8
Third Course		
Technical or Vocational Skills	42.1/25.6	31.3/12.5
Managerial Skills	15.5/17.5	11.8/11.1
Professional Skills	25.6/31.2	42.1/52.0
All Others	16.8/25.7	14.8/24.4

Table 4

Type of Employer-Paid
Course Activity
Private/Government
(Percent)

	Year	
First Course	1969	1975
Technical or Vocational Skills	25.6/22.6	27.1/15.7
Managerial Skills	16.5/12.7	15.7/13.6
Professional Skills	27.3/26.9	31.6/36.3
All Others	30.6/37.8	25.6/34.4
Second Course		
Technical or Vocational Skills	24.9/16.6	17.5/13.3
Managerial Skills	11.3/5.1	16.8/13.3
Professional Skills	26.7/28.2	31.6/41.4
All Others	37.1/50.1	34.1/32.0
Third Course		
Technical or Vocational Skills	16.2/14.6	14.7/10.1
Managerial Skills	7.2/5.2	14.4/12.8
Professional Skills	31.7/23.8	33.4/45.5
All Others	44.9/56.4	37.5/31.6

Note that one is able to derive the estimated number of participants in the various types of courses by multiplying the percentage in Table 3 by the corresponding entry in Table 2. For instance, the estimated number of first course paricipants taking a technical or vocational course in 1969 is 587,000 (i.e., 1,435,000 X .409). Similar computations can be used for the other tables in this section.

Several conclusions can be drawn from these two tables. First, approximately 85 percent of the privately provided courses is accounted for by the three categories of technical or vocational skills, managerial skills, and professional skills. For government provided courses, this percentage is somewhat lower at around 75 to 80 percent. Thus, most employer-provided training appears to be designed to enhance work-related skills of employees. Employer-paid course activity, on the other hand, is less likely to fall into one of these three categories of course activity, suggesting the more general orientation of this type of employer-sponsored education and training.

Second, these three categories of employer provided training are fairly stable over this period, with the exception of the professional skills area. This latter category of skills training has increased each year over the period 1969 to 1975. Further, this pattern of increasing course activity designed to foster professional skills is

found both among private and government employers, and in the two types of employer-paid course activity.

Tables 5 and 6 present the most frequently indicated subject matter areas in 1978. Two facts in these tables are informative. First, as in the case of the earlier classification scheme, most private, employer-provided course enrollments can be accounted for by these three areas, and to a lesser extent, private employer-paid course activities. The explanation of the substantially larger "other" course activities of those persons employed by local, state, or federal governments is to be found in those courses falling under "public administration". Second, the change in coding categories provides more insight into what constitutes "professional skills". Professional skills to an individual in the private sector could include business, engineering, or health care activities, depending upon one's occupation. For the government professional, public administration skills might need to be developed.

Tables 7 and 8 display the respondents' reasons for taking each course or activity. Overwhelmingly, people respond that they enrolled in these courses to "improve or advance in (one's) current job." This pattern is true for both private and government employees and for employer-provided and employer-paid activities. In 1978, the survey was extremely specific about what "get a new job"

Table 5

Type of Employer-Provided
Course Activity, 1978
Private/Government
(Percent)

First Course	
Business	38.4/22.7
Engineering-related	26.9/14.1
Health Care Science	19.1/16.2
All Other	15.6/47.0
Second Course	
Business	35.6/18.5
Engineering-related	25.2/10.2
Health Care Science	19.4/20.8
All Other	19.8/50.5
Third Course	
Business	30.3/12.4
Engineering-related	25.3/8.9
Health Care Science	22.9/16.7
All Other	21.5/62.0

Table 6

Type of Employer-Paid
Course Activity, 1978
Private/Government
(Percent)

First Course	
Business	39.9/16.0
Engineering-related	17.4/16.7
Health Care Science	13.1/11.7
All Other	29.6/55.6
Second Course	
Business	27.3/10.6
Engineering-related	13.1/16.1
Health Care Science	16.9/12.0
All Other	42.7/61.3
Third Course	
Business	33.4/22.4
Engineering-related	13.8/15.0
Health Care Science	12.4/5.5
All Other	40.4/57.1

Table 7

Reason for Taking Employer-Provided Course
Private/Government
(Percent)

	Year			
	1969	1972	1975	1978
First Course				
To Improve or Advance in Job	82.4/79.7	77.3/78.3	80.5/81.8	79.8/82.8
To Get a New Job	6.7/4.4	7.2/4.0	6.1/3.7	5.7/3.7
Other, Job-related Reason	NA	NA	NA	7.7/7.1
All Others	10.9/15.9	15.5/17.7	13.4/14.5	6.8/6.4
Second Course				
To Improve or Advance in Job	87.7/77.8	82.5/85.2	89.9/86.3	86.2/83.7
To Get a New Job	5.1/5.2	3.7/0	3.1/2.2	3.6/2.4
Other, Job-related Reason	NA	NA	NA	3.3/5.7
All Others	7.2/17.0	13.8/14.8	7.0/11.5	6.9/8.2
Third Course				
To Improve or Advance in Job	90.6/89.1	82.6/80.3	83.4/86.9	83.4/87.0
To Get a New Job	0/5.4	0/1.7	3.4/0	5.7/2.3
Other, Job-related Reason	NA	NA	NA	3.1/5.6
All Others	9.4/5.6	17.4/18.0	13.2/13.1	7.8/5.1

NA - Not Available

Table 8

Reason for Taking Employer-Paid Course
Private/Government
(Percent)

	Year			
	1969	1972	1975	1978
First Course				
To Improve or Advance in Job	83.3/76.7	80.5/80.6	83.3/89.2	80.8/82.5
To Get a New Job	2.1/3.3	3.1/2.8	4.0/3.2	13.4/4.0
Other, Job-related Reason	NA	NA	NA	4.3/3.8
All Others	14.6/20.0	16.4/16.6	12.7/7.6	1.5/9.7
Second Course				
To Improve or Advance in Job	79.3/82.5	80.2/79.2	81.2/81.0	72.8/78.1
To Get a New Job	3.4/1.6	3.8/5.4	5.2/3.3	7.3/5.1
Other, Job-related Reason	NA	NA	NA	2.4/2.2
All Others	17.3/15.9	16.0/15.4	13.6/15.7	17.5/14.6
Third Course				
To Improve or Advance in Job	76.7/87.8	79.8/86.1	74.2/81.9	71.7/91.7
To Get a New Job	6.0/0	6.3/6.4	4.2/8.4	11.8/2.8
Other, Job-related Reason	NA	NA	NA	1.5/.4
All Others	17.3/12.2	13.9/7.5	21.6/9.7	15.0/5.1

NA - Not Available

meant, and even when various types of occupational and industrial mobility options were distinguished, relatively few individuals gave this as their reason for taking the course. When the "other, job-related category" was included as a separate category the "all other" category was halved. When all job related reasons were totaled, well over 90 percent of the individuals indicated that such job related reasons accounted for the course enrollment.

Table 9 presents the percentage of individuals reporting whether or not they had completed their courses. Again, at least three-fourths indicated that they had already completed their courses. If the responses of those who indicated that they were still enrolled were added to those who had already completed their courses, the result would be over 90 percent in almost every case. These are impressive course completion statistics, even if one takes into consideration the possibility that many employer-paid programs require successful completion prior to the employer's making its contribution.

Finally, Table 10 provides data on the percentage of individuals responding that the course was offered at their place of work as distinct from training centers which may be located elsewhere. Two trends appear in this table. First, private, employer-provided courses are more likely to be provided at one's place of work than is true for government-provided courses. What is interesting is the

Table 9

Percent Completing
Employer-Sponsored Course
Private/Government

Employer-Provided

	Year			
	1969	1972	1975	1978
First Course	79.1/77.2	78.2/81.1	79.2/80.0	79.1/85.4
Second Course	74.6/81.5	81.6/79.4	85.2/85.6	90.5/91.7
Third Course	71.8/83.6	88.8/92.0	95.1/89.0	88.9/91.3

Employer-Paid

	Year			
	1969	1972	1975	1978
First Course	82.2/84.7	82.7/86.5	82.4/89.2	84.5/87.5
Second Course	85.9/88.0	87.1/87.1	90.2/92.0	89.2/94.6
Third Course	87.0/94.1	82.4/96.1	94.0/91.6	83.7/82.2

Table 10

Percent of Employer-Sponsored Courses
Offered at Place of Work
Private/Government

Employer-Provided

	Year			
	1969	1972	1975	1978
First Course	60.2/52.4	59.6/47.3	57.9/41.4	48.6/39.0
Second Course	54.7/61.9	58.0/46.4	64.0/53.2	48.3/44.4
Third Course	56.5/49.0	51.6/40.5	60.4/47.3	50.4/39.7

Employer-Paid

	Year			
	1969	1972	1975	1978
First Course	8.2/11.2	12.6/10.5	10.6/9.5	5.7/9.7
Second Course	11.6/9.4	12.9/20.6	9.4/8.3	2.9/8.1
Third Course	8.7/12.4	16.3/6.9	5.0/8.2	4.2/17.6

steady decline in these percentages for both types of employers. Why such a pattern emerges in unclear. Second, relatively few individuals report that their employer-paid course was offered at their place of work. No pattern is readily apparent in these data, even though a great deal of publicity has surrounded the efforts of two-year and four-year colleges to offer courses at the work site.

Emerging from this analysis of employer-sponsored education and training are the following tentative conclusions.

- First, the types of courses in which people enroll are increasingly oriented toward the "professional." In this instance, the category of professional includes engineers, health care specialists, and public administrators. This pattern of course activity suggests certain age, and more importantly, educational backgrounds that are detailed in Section C below.
- Second, people enroll in these courses for job-related reasons generally and "to improve or advance in one's current job" in particular.
- Third, people overwhelmingly complete these courses.

C. Demographic Attributes of Participants.

Recall that approximately 90 percent of the total course enrollments in Table 2 are attributable to the multiple course enrollments of individual persons. Thus, examining the demographic attributes of those persons who enrolled in the first course will capture approximately 90 percent of all enrollments in some type of employer-sponsored education and training.

Information presented in this and the following section are of two types, the total number of first course participants stratified by class of employer, type of employer-sponsored education and training, and either a demographic or labor force attribute. These estimates of employee involvement are also adjusted by the size of the relevant, employed labor force. For instance, if the issue under consideration is the involvement of women in private, employer-provided education and training, not only are estimates of the number of women displayed, but so too is an estimate of the rate of private, employer-provided education and training, adjusted not only for the size of the female labor force, but those women employed by private employers. Note that these adjustments exclude those persons who are self-employed.

Table 11 presents the analysis of employer-sponsored education and training by gender and race. Several patterns among employer-provided education and training are apparent. First, almost the total growth in private employer-provided training is to be found among women. Second, men are much more likely to be involved in employer-sponsored training than are women. This conclusion holds only within category of private employee for it is clear that women employed by the local, state, or federal government are as likely to receive training as are men employed by private firms. Third, whites are more likely than non-whites to be involved

Table 11

First Course Participants in
Employer-Provided Education and Training by
Gender and Ethnicity
Private/Government

	Year			
	1969	1972	1975	1978
Gender				
Male (in thousands)	1110/336	1149/352	959/293	1148/439
% of those in relevant labor force[1]	3.2/5.2	3.2/4.9	2.6/3.9	2.8/5.7
Female (in thousands)	325/165	407/232	355/206	646/445
% of those in relevant labor force[1]	1.6/3.1	1.8/3.8	1.5/3.0	2.3/5.9
Ethnicity				
White (in thousands)	1366/437	1473/513	1232/458	1674/774
% of those in relevant labor force[1]	2.8/4.5	2.9/4.7	NA	NA
Non-white (in thousands)	70/64	82/72	82/41	119/111
% of those in relevant labor force[1]	1.1/3.9	1.3/3.7	NA	NA

[1] Denominators for these ratios are taken from the Bureau of Labor Statistics, "Employment and Earnings and Monthly Report on the Labor Force," various editions.

NA - Not available.

in employer-provided training. Again, this conclusion is limited to comparisons within categories of employers. Fourth, both of these patterns are fairly stable over this ten-year period.

Table 12 presents a somewhat different story for employer-paid education and training. In the case of men and women, differences in the rate of involvement in these programs have all but disappeared over this ten-year period. This reduction of rates of involvement in employer-paid programs has occurred due to declining rates of involvement among males coupled with increasing rates for women. However, when assessing these involvement rates one must examine carefully both the numerator and denominator of both ratios. For instance, the equalization in rates among men and women employed by governments has resulted from a decline in involvement in such programs (see Table 2) while the corresponding labor force has been increasing.

In the case of whites and non-whites, a substantial reversal from the employer-provided case is evident. The percentage of non-whites involved in such programs is higher than the percentage of the relevant white population. This pattern is true for both private and government employees, although the number of participants in the latter category of employer are actually too small to be reliable. What is even more remarkable is the sudden and dramatic decline

Table 12

First Course Participants in Employer-Paid Education and Training by Gender and Ethnicity Private/Government

	Year			
	1969	1972	1975	1978
Gender				
Male (in thousands)	816/281	855/292	863/300	730/187
% of those in relevant labor force[1]	2.3/4.3	2.3/4.1	2.4/4.0	1.8/2.4
Female (in thousands)	178/168	304/216	447/271	493/159
% of those in relevant labor force[1]	.9/3.1	1.4/3.5	1.9/3.9	1.8/2.1
Ethnicity				
White (in thousands)	970/23	1117/43	1233/76	1182/327
% of those in relevant labor force[1]	2.0/.2	2.2/.4	NA	NA
Non-white (in thousands)	406/42	449/58	539/32	41/19
% of those in relevant labor force[1]	6.4/2.6	7.0/3.0	NA	NA

[1] Denominators for these ratios are taken from the Bureau of Labor Statistics, "Employment and Earnings and Monthly Report on the Labor Force," various editions.

NA - Not available.

in non-white involvement in private, employer-paid training in 1978.

Assuming that this latter decline is anomalous, these patterns by gender and race parallel national patterns in college participation rates. Although not displayed, most employer-paid education and training occurs in two-year and four-year colleges and universities. During the period covered by this study, rates of college participation have declined among white males but increased among white females and minorities. One might surmise that the removal of discriminatory practices in various labor markets has given rise to increased rates of return to this type of training.

Table 13 presents the number of employees in employer-provided training by level of education. Together with Table 15, these data provide some interesting insights. First, both the public and the private sector prefer to train people with at least a high school diploma. Those with a high school diploma or less are more likely to receive employer-provided than employer-paid instruction. There is a tendency, although not perfect, to train or educate those people who already have shown educational achievement.

In the case of the employee's age, a clear pattern emerges in Table 14; most employer-provided training goes to employees 25 to 44 years of age. In terms of both absolute number and relative to the size of the age cohort,

Table 13

First Course Participants in Employer-Provided Education and Training by Education Private/Government

	Year			
	1969	1972	1975	1978
Education				
< High School (in thousands)	194/67	157/63	98/41	110/49
% of those in relevant labor force	NA	NA	NA	NA
High School Graduate (in thousands)	700/221	683/222	517/157	698/280
% of those in relevant labor force	NA	NA	NA	NA
Some College (in thousands)	279/97	392/103	342/114	493/184
% of those in relevant labor force	NA	NA	NA	NA
≥ 4 Years of College (in thousands)	262/116	324/197	357/187	493/372
% of those in relevant labor force	NA	NA	NA	NA

NA - Not available

Table 14

First Course Participants in
Employer-Provided Education and Training by Age
Private/Government

	Year			
	1969	1972	1975	1978
Age				
17 - 24	277/57	286/78	276/63	313/80
% of those in relevant labor force[1]	2.5/3.2	2.2/3.9	2.0/2.8	1.9/3.9
25 - 34	520/144	552/160	477/166	695/306
% of those in relevant labor force[1]	4.3/5.5	4.1/5.0	3.2/4.2	3.8/6.9
35 - 44	340/133	374/153	286/102	405/219
% of those in relevant labor force[1]	2.9/5.1	3.3/5.4	2.6/3.4	3.2/6.6
45 - 54	238/104	261/143	175/126	246/166
% of those in relevant labor force[1]	2.1/3.8	2.3/4.7	1.6/4.0	2.2/5.3
55 - 64	55/60	69/45	87/39	127/104
% of those in relevant labor force[1]	.7/3.2	.9/2.4	1.2/2.1	1.7/5.2
65 +	5/2	14/6	11/5	9/9
% of those in relevant labor force[1]	.3/.6	.8/1.8	.7/.2	.5/2.9

[1] Denominators for these ratios are taken from the Bureau of Labor Statistics, "Employment and Earnings and Monthly Report on the Labor Force," various editions.

individuals in this age group are most likely to benefit from employer-provided programs. Clearly, employer-provided programs are not being provided for the youngest workers seeking career entry positions. While the absolute number of young workers receiving training has increased slightly, the total age cohort has grown much more rapidly, resulting in the erosion of involvement rates among workers in this age group.

Table 15 displays employee involvement in employer-paid training programs by level of education. As commented earlier, the most striking result is the fact that higher education levels are most clearly associated with benefitting from employer-paid education and training. Training for most education levels decreased between 1975 and 1978, for employer-paid courses.

In the case of the employee's age, Table 16 presents a pattern similar to the one identified in Table 14. Most of the employees involved in these programs are in the 25 to 44 year old age group. Again, young employees (17 to 24 years) are about as likely to receive training as are employees who are 45 to 54 years of age. Taken together with the results from Table 10, these data would tend to confirm the hypothesis that prime-age rather than younger workers are the primary beneficiaries of employer-sponsored training.

Table 15

First Course Participants in Employer-Paid Education and Training by Education Private/Government

	Year			
	1969	1972	1975	1978
Education				
< High School (in thousands)	55/48	53/27	52/34	43/7
% of those in relevant labor force	NA	NA	NA	NA
High School Graduate (in thousands)	298/117	334/105	375/122	282/51
% of those in relevant labor force	NA	NA	NA	NA
Some College (in thousands)	281/84	345/116	386/107	347/66
% of those in relevant labor force	NA	NA	NA	NA
≥ 4 Years of College (in thousands)	360/199	428/260	496/305	872/222
% of those in relevant labor force	NA	NA	NA	NA

NA - Not available

Table 16

First Course Participants in
Employer-Paid Education and Training by Age
Private/Government

	Year			
	1969	1972	1975	1978
Age				
17 - 24	154/47	156/66	238/63	215/28
% of those in relevant labor force[1]	1.4/2.7	1.2/3.3	1.7/2.8	1.3/1.4
25 - 34	456/134	512/163	591/184	536/170
% of those in relevant labor force[1]	3.7/5.1	3.8/5.1	4.0/4.7	3.0/3.8
35 - 44	246/114	284/134	235/150	257/82
% of those in relevant labor force[1]	2.1/4.4	2.5/4.8	2.1/1.4	2.0/2.5
45 - 54	94/99	160/101	180/121	158/48
% of those in relevant labor force[1]	.8/3.6	1.4/3.3	1.6/3.8	1.4/1.5
55 - 64	44/49	42/42	63/51	46/16
% of those in relevant labor force[1]	.6/2.6	.6/2.2	.9/2.8	.6/.8
65 +	0/4	6/2	3/3	10/0
% of those in relevant labor force[1]	0/1.2	.3/.6	.2/.9	.6/0

[1] Denominators for these ratios are taken from the Bureau of Labor Statistics, "Employment and Earnings and Monthly Report on the Labor Force," various editions.

In summary, the review of the demographic attributes of participants yields the following conclusions:

- Almost the entire growth in employer-provided education and training is accounted for by increasing rates of participation among women.
- On the whole, participants tend to be prime-age, white males with fairly substantial educational achievements.
- In the case of employer-paid courses, both women and minorities appear to be matching the rate of involvement of white males. Those with a high school diploma or less are more likely to participate in employer-provided than employer-paid courses.

D. Labor Force Attributes of Participants.

As noted in Section A, the number of individual participants in employer-sponsored education and training increased over the ten-year period, 1969 to 1978. An important question arises as to whether this increase is attributable to inter-industry shifts in employment or to the intra-industry composition of employment. The answer to this question will help to identify the factors underlying growth in this type of education and training.

Table 17 displays the change in employment for the period 1969 to 1978 and the percent of individuals involved in private, employer-sponsored education and training. While the total number of persons employed increased at an average annual rate of 2.5 percent, the increase in private, employer-sponsored education was only 2.2 percent.

Table 17

Employment Change by Industry and Private Employer-Sponsored Share of Labor Force 1969-1978

Industry	Mean Annual Growth Rate, 1969-1978	Share of Total Employed 1969	1972	1975	1978	Percent Receiving Private Employer-Sponsored Training 1969	1972	1975	1978
Agriculture	-.6	.048	.043	.042	.035	.2	0	.3	.5
Mining (OSHA)	4.6	.007	.008	.010	.008	6.9	38.5	8.9	6.3
Construction	2.5	.065	.066	.062	.062	1.5	0	2.4	1.6
Manufacturing	.2	.284	.255	.235	.228	5.0	4.5	4.2	4.1
Transportation & Utilities	2.2	.068	.069	.068	.065	4.7	2.9	5.3	4.3
Wholesale & Retail Trade	4.2	.171	.183	.191	.202	2.9	2.4	2.9	2.0
Finance, Insurance, & Real Estate	4.0	.048	.054	.056	.056	9.1	12.8	9.4	8.7
Public Administration	1.7	.057	.058	.057	.053	0	0	0	0
Private Household Service	-2.2	.022	.019	.015	.013	0	0	0	0
Misc. Service	4.3	.230	.245	.264	.274	2.1	.5	3.1	3.5
Total Industries	2.5	1.0	1.0	1.0	1.0				

Consequently, one would expect some erosion in the percent of individuals involved in private training programs. Focusing upon the three industries with the highest percent of those receiving education and training, one notes that the share of total employment accounted for by these training-intensive industries increased from 28.5 to 33.8 percent. This trend would indicate that some reduction in the number of individuals involved in training programs is offset by the growth in training-intensive industries.

This suggestion is further supported by the following test. In 1969, 3.56 percent of the privately employed labor force received some type of employer-sponsored education and training. If training had composed the same proportion of employment within industries in 1969 as in 1978, the share of total employment would have been 3.38 percent. As it was, training composed 3.44 of private labor force in 1978, demonstrating that growth in training-intensive industries offset some of the overall erosion in employer-sponsored education and training.

Further analysis of the industries in which the percent of private, employer-sponsored training is greatest is displayed in Table 18. When examining the category of Transportation and Utilities in Table 17, one notes that while non-railroad related transportation decreased at an average annual rate of 8.4 percent, this decline was more than offset by increases in private, employer-sponsored education

Table 18

Trends in Private, Employer-Sponsored Education and Training by Industry, 1969-1978 (in thousands)

	1969	1972	1975	1978	Average Annual Percent Change
Manufacturing					
Durable	722	339	470	566	-2.4
Non-durable	302	527	282	306	.1
Non-RR Transportation	123	82	38	51	-8.4
Utilities	39	20	120	121	12.0
Trade					
Wholesale	61	117	76	98	4.9
Retail	175	103	181	168	-.4
Finance, Insurance, and Real Estate	174	272	191	250	3.7

in the Utilities sector. This 12.0 percent rate of increase is substantially in excess of the overall 2.2 percent increase in private training. This illustration constitutes a clear example of the impact of inter-sector shifts in employment. Similarly, the 3.7 percent increase in Finance, Insurance, and Real Estate, while less that the 4.0 percent annual increase in employment in this sector, is still in excess of the overall 2.2 percent increase.

Table 19 displays the change in occupation and employer-sponsored education and training from 1969 to 1978. While not originially intended, it is apparent that the proportion of individuals within each occupation receiving education and training is scaled from highest to lowest. Heading the list are professional, technical, and kindred employees with as many as 1 in 10 chances of receiving training. This information is consistent with the prior information on the type of courses offered (Tables 3 and 4), and the educational characteristics (Tables 13 and 15) of these participants. Disproportionately, employer-sponsored education and training is being provided to professional employees. Following are professional employees managers, who tend to have a 1 in 16 chance of receiving training. Again, this pattern is consistent with the course and educational backgrounds detailed earlier in this report.

Table 19

Employment Change by Occupation and Employer-Sponsored Share of Labor Force 1969-1978

Occupation	Mean Annual Growth Rate, 1969-1978	Share of Total Employed 1969	1972	1975	1978	Percent Receiving Employer-Sponsored Training 1969	1972	1975	1978
Professional	3.4	.143	.146	.157	.157	9.4	10.3	10.7	8.9
Managers	2.3	.110	.105	.113	.108	6.0	3.7	6.7	6.2
Sales Workers	3.1	.058	.062	.062	.062	5.2	2.6	5.2	4.3
Clerical	3.0	.168	.172	.173	.177	4.0	3.8	4.2	4.0
Craftsmen	2.2	.135	.137	.136	.132	3.0	5.8	5.2	4.0
Operatives	.5	.184	.168	.152	.151	1.2	1.8	1.7	1.4
Service Workers, Domestics, and non-farm laborers	.7	.157	.171	.169	.131	2.9	.7	2.6	3.4
Farmers	-1.7	.045	.038	.037	.029	0	.5	.2	.3
Total All Occupations	2.5	1.0	1.0	1.0	1.0				

In summary, Section D suggests:

- One of the factors underlying changes in the level of employer-sponsored education and training are inter-sectoral shifts in employment. This change in industrial mix causes shifts in the demand for labor with certain skills, which is being met in part by employer-sponsored education and training.

- The evidence is clear that the labor skills in short supply occur within the professional and managerial occupations. This latter finding is consistent with the course activities, age, and educational backgrounds of participants presented earlier.

EMPLOYER-PROVIDED EDUCATION AND TRAINING IN 1981

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This report updates Trends in Employer-Sponsored Education and Training (Tierney, 1982) which presented data on employer-sponsored training activities for the period 1969-1978. The present report is more than a simple analysis of the most recent (1981) survey of adult education. Due to a significant change in data collection procedures by the Bureau of the Census, it is now possible to estimate the relative magnitude of one source of under-enumeration identified in the 1982 report: the failure of adults who indicated some type of adult education activity to respond to the supplemental Adult Education Survey. Using these estimates, it is possible to re-estimate data from the 1969-1978 triennial surveys and more accurately determine the scale and growth in the formal education and training activities of America's corporations.

Data and Methodology

As in the previous report, estimates of the nature and extent of formal, employer-provided education and training programs are derived from the May Current Population Survey (CPS) of the Bureau of the Census. As before, these estimates are restricted to the civilian, non-institutionalized

population over the age of 16 who were not full-time students in high school or college.

While the basic sampling procedure underlying these surveys is discussed more fully in the 1982 report, one significant change should be noted. At the request of National Institute of Education staff, estimates in this report are limited to employer-provided education and training activities. These activities involve those formal educational programs provided by the employer for its employees distinct from employer-paid activities in which the employer pays at least part of the cost of its employees' educational activities even though these activities are provided by other agencies (e.g., colleges, professional or labor associations, etc.). As before, the data analysis also distinguishes between private and various governmental employers.

Table 1 displays the sample size and population estimate for the 1981 May Current Population Survey. From the 50,000 or so households in the survey, data on 9,081 adult education participants was collected in 1981. It should be noted that data on the individuals within a sampled household were supplied to the interviewer by one person who was at home when the interviewer scheduled the interview. Thus, the accuracy of the data is dependent upon the interviewee's knowledge of the activities of each member of the household in this as in previous surveys. Efforts to

Table 1

Sample Size and Population
Estimate for the 1981
Current Population Survey
May Supplement

Sample of Adult Education Participants	9,081
Estimated Population of Adult Education Participants	12,656,474

minimize questionnaire non-response in 1981 still are subject to this source of under or even over-enumeration.

While the sample size is 9,081 individuals, the Bureau of the Census has developed a set of weights for inflating each sample to estimate the target population defined in the first paragraph of this section. These weights, which control for geographical area, gender, and race are employed without modification in subsequent tables. Thus the 9,081 individuals in this survey represent an estimated population of 12,656,474.

Questionnaire Non-response. As discussed at length in our 1982 report, one major source of under-enumeration in the May CPS stems from a failure on the part of identified adult education participants to return the supplemental

Adult Education Survey. In our 1982 report, an estimate was made that the results presented in that report could be off by 20 percent for this reason alone.

In order to address this problem, the Bureau of the Census initiated a more aggressive campaign to increase the rate of response to this supplemental questionnaire. Specifically, once a household member was identified as participating in some type of adult education activity, the interviewer attempted to contact that member, usually via a phone interview, in order to obtain as much data as possible from the actual adult education participant. The result of this intensified follow-up procedure was a remarkable 96 percent response rate.

This near-perfect response rate constitutes a significant opportunity to re-estimate the 1982 report's estimates of the number of unique individuals involved in employer-provided training programs. Several different correction procedures were employed with less than satisfactory results, including an attempt to develop a conditional logit model to predict who would be involved in an employer-provided program. Because these models fit the data for 1981 so poorly, they were abandoned rather than introduce biases of unknown magnitude and direction into our corrections. Consequently, a set of simple proportions was calculated using 1978 and 1981 data to determine who among

all adult education participants were in private and governmental, employer-provided programs. Such proportions, as in the case of any correction procedure, assume that the dynamics underlying involvement in an employer-provided program are constant over the period 1969-1981. While an untenable assumption in the case of specific categories of individuals, it is probably reasonable when dealing with a very large population of participants.

Results

The results presented below attempt to answer three basic questions.

1. What is our best estimate of the number of employees participating in employer-provided programs in 1969 through 1981?
2. What are the subject areas (broadly defined) and employee reasons for participating in employer-provided education and training programs?
3. What are the demographic and labor force attributes of these participants?

Growth in Employer-Provided Training: 1969-1981.

Table 2 provides our best estimate of the volume of corporate education and training for the period 1969-1981. These volume measures employ 1978 and 1981 CPS results to estimate the correct number of unique individuals involved in employer-provided training programs.

The correction procedure had two components. The first component adjusts the 1969-1978 first course enrollments to

Table 2

Employer-Provided Education
and Training Participants, 1969-1981
(in thousands)

	1969	1972	1975	1978	1981	Avg. Annual Growth Rate
Number of Employees Reporting Participation in Training Program						
Private	1578	1712	1445	2097	3596	7.1
Government	551	642	550	1060	1546	9.0
Adjusted for Questionnaire Non-Response						
Private	2446	2654	2240	3252	3596	3.3
Government	799	931	798	1541	1546	5.7
Total Labor Force						
Private	54688	57542	61014	78282	82592	3.5
Government	11461	12924	14556	16873	17134	3.4
Participation Rate: Number of Participants divided by Total Labor Force						
Private	4.5	4.6	3.7	4.2	4.4	-.2
Government	7.0	7.2	5.5	9.1	9.0	2.1

include those individuals involved in an employer-provided program, but who were classified as such only in the second or third courses (an artifact of the questionnaire itself). As noted in our 1982 report, the first course enrollees constitute 90 percent of all individuals involved in private, employer-provided programs. For 1981, the proportion of unique, private sector employees so classified

by the first adult education course they identified was .896. For government employees, this proportion was .849.

The second component is the one that takes advantage of the intensified follow-up procedure of the Bureau of the Census. This component required four distinct steps. In the first step, the proportion of all 1981 adult education participants employed in the private sector who participated in any employer-provided education and training course was calculated. In the second step, this procedure was repeated for respondents employed by a public agency. The proportions were .284 for private workers and .351 for government employees. In the third step, each proportion was multiplied by the total number of 1978 individuals who indicated that they were involved in some type of adult education activity but who may or may not have completed the supplemental Adult Education Survey. This estimated number of employer-provided participants was compared to the "actual" number of 1978 employer-provided individuals (as estimated in our 1982 report) with the differences assumed to be solely a function of questionnaire non-response. In the final step, the ratio of 1978 estimated to "actual" participants for each sector (private/public) was then multiplied by the number of "actual" participants in 1969, 1972, and 1975. This last step was necessary due to the fact that only those individuals who completed the Adult

Education Survey were included in the data files for those three years. These adjustments are displayed in the third and fourth rows of Table 2.

Two fundamental conclusions can be derived from this table. First, the total number of unique individuals receiving employer-provided training is 3,596,000 for private-sector employees and 1,546,000 for government-sector employees in 1981. These estimates constitute a significant number of individuals and a substantial investment on the part of employers in their human resources. Note that this estimate corrects for all but one source of under-enumeration identified in the 1982 report: the initial interviewee being unaware of the training activities of various household members.

Second, there has been modest growth in the number of individuals receiving private, employer-provided training over this twelve-year period. This growth, however, is almost completely explained by the growth in the size of the private labor force. As argued in our 1982 report, it is probably the case that the number of individuals trained would have declined had training-intensive industries not increased their share of the total number of jobs in the private sector. On the other hand, government, employer-provided training has increased at a rate that is much faster than the growth in government employees. As a

result, the probability that a government employee receives training has risen from one-in-fourteen to one-in-eleven.

Employer-Sponsored Course Activity. In the 1981 Adult Education Survey, respondents could identify up to four adult education activities. As in our 1982 report, only the first three are reported in this study due to the fact that the total number of respondents in a fourth course was too small to provide reliable estimates. For reasons that will become evident, reporting the results for each of these three courses suggests that even more Human Relations-oriented training is now being reported by these adults. Thus, yet another possible source of under-enumeration identified in our 1982 report--that resulting from receiving training but not being recognized as training --would appear to be minimal.

Table 3 displays the total number of respondents for each of tne three courses. For comparison purposes, data for 1978 also are displayed. One should not attach any significance to the increase between 1978 and 1981 in this table due to the fact that the 1978 data are not corrected for under-enumeration. However, one should note that many more individuals are reporting a second or third courses in 1981 than in 1978. While 73 percent of the total headcount enrollment in 1978 was attributable to those individuals enrolling in just one course, the corresponding percentage

Table 3

Scale of Employer-Provided
Education and Training
(in thousands)

	1978	1981
First Course		
Private employer	1,793	3,222
Government employer	885	1,313
Second Course		
Private employer	470	1,239
Government employer	331	629
Third Course		
Private employer	199	690
Government employer	143	349
Total Headcount, first three courses		
Private employer	2,464	5,151
Government employer	1,359	2,291

in 1981 slips to 63 percent. Alternatively stated, an adult involved in a private, employer-provided program reported an average of 1.2 such activities in 1978; in 1981 adults reported an average of 1.4 courses. This increase in the average number of courses could represent either an expansion of employer-provided training opportunities or alternatively, a more complete identification of the various courses in which one has been involved.

This latter possibility is particularly compelling when one examines the reasons respondents gave for taking each course. Table 4 presents these data, again comparing 1978 and 1981 results. When considering the first course, there

Table 4

Reason for Taking Course
(Percent of Total Respondents for each course)

	Private Employer		Public Employer	
	1978	1981	1978	1981
First Course				
Improve in current job	79.8	80.5	82.8	79.5
Career mobility	5.7	6.3	3.7	13.1
Other job-related	7.7	7.4	7.1	9.1
All Other	6.8	5.8	6.4	6.2
Second Course				
Improve in current job	86.2	28.2	83.7	83.4
Career mobility	3.6	14.9	2.4	3.5
Other job-related	3.3	2.6	5.7	8.0
All Other	6.9	54.3	8.2	5.1
Third Course				
Improve in current job	83.4	33.3	87.0	86.2
Career mobility	5.7	16.6	2.3	3.6
Other job-related	3.1	2.5	5.6	7.1
All Other	7.8	47.6	5.1	3.1

has been little change in the underlying reasons given by employees for their involvement in employer-provided training; over 90 percent indicate some job-related reason. By far the most frequently given reason is "to improve, advance, or keep up-to-date in my current job." Thus, individuals become involved in these activities primarily to become better at their current job, rather than seeking an avenue to career mobility either in terms of getting a new job in one's current occupation or changing occupations.

When one considers the second and third course for private-sector employees, there is a substantial deviation

from the pattern for 1978. In 1981, about half of the individuals gave a job-related reason for their involvement in employer-provided training programs. Among the other half, personal or social reasons led the list of reasons for taking the second or third course. This pattern of results would tend to substantiate the proposition that the 1981 respondents, when prompted by the interviewer, were much more likely to recall the "team-building" program that he or she attended not so much because it would improve their current set of skills but because their supervisor encouraged them to attend.

Finally, Table 5 presents the subject matter area of each course or activity. One difference in the questionnaire between 1978 and 1981 involves a change in the engineering item from "engineering and engineering related" to "engineering and engineering technology, computer science and data processing, etc." With the addition of the computer and science data processing specification, the percentage of individuals reporting this subject matter dropped between 1978 and 1981. Other than this change, the data for these two years appear to be relatively stable.

From these data, the following conclusions were formulated:

- 1981 respondents appear to have been more exhaustive in reporting their various, employer-provided course activities. Due to the increased number of individuals reporting a second or even third course,

Table 5

Scope of Employer-Sponsored Education and Training (Percent of Total Respondents for each course)

	Private Employer 1978	Private Employer 1981	Public Employer 1978	Public Employer 1981
First Course				
Business	38.4	38.2	22.7	18.4
Engineering, Computer Science	26.9	21.6	14.1	9 4
Health care	19.1	15.2	16.2	14.2
All others	15.6	25.0	47.0	58.0
Second Course				
Business	35.6	42.9	18.5	19.7
Engineering, Computer Science	25.2	17.2	10.2	17.2
Health care	19.4	17.3	20.8	12.6
All others	19.8	22.6	50.5	50.5
Third Course				
Business	30.3	38.1	12.4	20.2
Engineering, Computer Science	25.3	18.2	8.9	5.4
Health care	22.9	17.8	16.7	19.5
All others	21.5	25.9	62.0	54.9

and the reasons given for taking these courses, the telephone follow-up helped minimize under-enumerations of previous employer-provided activity.

- The vast majority of respondents take at least one course to become better at their current job, a result which has positive productivity implications.

- Most private sector training is in one of three areas: business, engineering or computer science, or health care.

Demographic Attributes of Participants. In this section, data on the demographic attributes of individuals who identified their first adult education course as employer-provided are displayed. These individuals constitute

approximately 90 percent of all private sector employees receiving training from their employers and 85 percent of all government employees. Further, two types of data are presented: the total number of individuals, stratified by class of employees, receiving employer-provided training, and this number divided by the size of the relevant labor force.

Unlike the tables in the previous section, Table 6 does not include the comparable data for 1978, since the correction procedure we adopted becomes less reliable for such subgroups.

Broadly sketched, males are slightly more likely to be involved in employer-provided training than are females. While this conclusion holds for both private sector and government employees, the discrepancy is smaller within the private sector. In subsequent explorations of those women who receive training, it is apparent that widowed or divorced women are more likely to receive training than their married counterparts. This pattern may indicate employer judgments that the latter category of women's involvement in the labor force is more temporary and thus employers are less likely to capture a return on their investment in these women. Whites are more likely to receive employer-provided training than are non-whites. In the private sector, whites are almost twice as likely to receive employer-provided training than are non-whites.

Table 6

Participation in Employer-Provided
Education and Training By
Selected Demographic Attributes
(1981 May CPS)

	Private Employer		Government Employer	
Attributes	Number (in thousands)	Percent of Labor Force	Number (in thousands)	Percent of Labor Force
Gender				
Male	1881	4.0	677	8.3
Female	1340	3.7	636	7.1
Race				
White	3016	4.1	1147	8.0
Non-white	206	2.1	166	5.8
Age				
17-24	493	2.4	118	5.3
25-34	1271	5.4	375	7.9
35-44	731	4.8	387	9.8
45-54	479	4.0	267	7.9
55-64	228	1.9	148	6.5
65+	--	--	--	--
Education				
No more than 8th grade	--	--	--	--
Some high school	134	1.2	--	--
High school diploma	1147	3.2	340	6.5
Some college	892	5.2	320	9.4
Bachelor's degree	643	7.7	276	9.6
Graduate training	382	8.4	336	8.9

Among government employers, this discrepancy is smaller although still present.

Approximately 60 percent of employer-provided training is delivered to individuals 25-44 years old, regardless of whether one is considering the private or government sector. In terms of participation rates, individuals in

this age group employed by private firms have a one-in-twenty chance of receiving training while younger workers have about a one-in-forty chance of being trained in these programs. For the government sector, the corresponding chances of receiving training are at least one-in-twelve for 25-44 year olds as against a one-in-twenty chance for younger employees. As reported in our 1982 report, education and training programs appear to be directed toward experienced workers as opposed to new labor force entrants.

The pattern for employer-provided education and training by level of education is even more striking. Within the private sector, there is a perfect scaling by the employee's level of educational achievement. Those private sector employees with graduate training are about seven times as likely to receive training as are those employees not finishing high school. A similar scaling occurs within the government sector, with a slight deflection among those with graduate training. Again as reported in our 1982 report, formal education and training programs appear to be directed toward those workers who already have substantial levels of educational achievement.

Labor Force Attributes of Participants. Table 7 displays data similar to that found in Table 6; the total number of participants and this number as a percentage of the relevant labor force. Consistent with the data for the training by level of education is the relationship between occupational category and the probability of receiving

Table 7

Participation in Employer-Provided Education and Training by Selected Labor Force Attributes (1981 May CPS)

Attribute	Private Employer: Number (in thousands)	Private Employer: Percent of Labor Force
Occupation		
Professional and Technical	851	9.4
Managers and Administrators	545	6.7
Sales	226	4.0
Clerical	531	3.6
Craftsmen	576	5.1
Operatives	208	1.5
Service Workers, non-farm laborers, private household	250	2.3
Industry		
Agriculture	20	1.3
Mining	111	10.3
Construction	101	2.0
Manufacturing	834	3.6
Transportation and Utilities	328	5.9
Wholesale and Retail Trade	408	2.2
Finance, Insurance and Real Estate	432	7.7
Public Administration	0	0
Private Household Service	4	.4
Miscellaneous Service	954	5.6
Geographical Region		
New England	190	3.7
Middle Atlantic	372	2.8
South Atlantic	500	3.9
East North Central	588	3.6
West North Central	311	4.9
East South Central	155	3.2
West South Central	336	4.0
Mountain	244	6.2
Pacific	527	4.5

private, employer-provided training; professional and technical employees and managers are the most likely occupations to receive training. Leading the way are professional and technical workers with a one-in-ten chance of receiving training followed by managers with a one-in-fifteen chance. As most of these positions require at least some college, this pattern should not be surprising.

Among blue collar workers, only craftsmen receive employer-provided training in any significant numbers. Their chances of receiving training is one-in-twenty, a probability which exceeds even those of the two remaining categories of white collar workers.

The pattern by industry identifies Mining, Finance, Insurance, and Real Estate, Transportation and Utilities, and Miscellaneous Services (in descending order) as the most frequent users of employer-provided training. Individuals employed in the Mining industry--an industrial category which includes the larger oil companies--have a one-in-ten chance of receiving training. Many of these courses may be hypothesized to center on safety regulations as well as the more general subject categories of engineering or business. Next in order of frequency is the Finance, Insurance, and Real Estate sector which includes commercial banks which find themselves in an increasingly competitive environment

which require these institutions to keep their personnel up-to-date in the most current, computer-based customer services. As in our 1982 report, most employees receiving training in the Transportation and Utilities sector are found in the communications industries and public utilities. The bulk of training among miscellaneous services is provided in the medical-related industries (typically hospitals).

Finally, there does not appear to be any pattern in the distribution of employer-provided training by geographical region.

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THE IMPACT OF CORPORATE EDUCATION AND TRAINING ON EARNINGS AND EMPLOYMENT

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It is apparent that private, employer-provided education and training has grown during the ten year period, 1969-1978 (Tierney, 1982). For most of this period, the rate of growth was modest, averaging only 2.3 percent per year. In fact, had it not been for an expansion in training-intensive industries, there would have been a decline during this period. However, there has been an acceleration in the amount of education and training provided by private industry between 1975 and 1981 (Tierney, 1983). This recent acceleration probably has fueled speculation that corporate education and training programs are supplanting more traditional, postsecondary education programs.

Why do firms provide this training in the first place? While an answer to this question must await completion of our case studies of individual firm decisions, it may be postulated that firms are forced to provide their own programs to overcome shortages among certain categories of employees; i.e., those with substantial levels of experience or the requisite skills and attitudes. In-house training programs constitute one alternative to accommodating such shortages by developing needed skills among current employees who have been identified as "trainable."

What are the consequences of such training programs? For the firm, such programs assure a sufficient supply of required skills and attitudes that are essential to producing the firm's product(s). In some cases, such training might be critical to keeping the firm current in technologically dynamic areas. For the employees receiving the training, one could anticipate personal benefits in at least two areas: increased compensation and decreased probability of experiencing bouts of unemployment. The fundamental objective of this paper is to examine the extent to which corporate education and training programs confer these personal benefits.

A Conceptual Framework Sketch

According to the human capital model, education and training activities can be classified as either general or specific according to whether these activities provide skills applicable in many different firms or to just that firm providing the training (Becker, 1975). Within this classification scheme, in-house education and training programs would be considered specific training, with the following consequences. Such training would enhance the productive capacity of employees receiving the training which, in turn, should lead to a rise in the earnings of these individuals. However, because the costs of these training activities are borne by the firm, these increased earnings

are less than would be warranted by the additional productivity of these trained employees. This discrepancy provides the primary mechanism by which firms finance their training costs.

The major alternative explanation of the relationship between training and earnings is the "screening hypothesis." Basic to the various versions of this hypothesis is the assertion that wages adhere to a job rather then a worker. In other words, wages are determined not by the productivity of the worker but by the policies and practices of individual firms. These policies and practices, in turn, tend to reward the possessors of objective credentials rather than a worker's skills and abilities. Among these objective credentials may be participation in a firm's own training programs.

More radical versions of the screening hypothesis argue that formal schooling and post-school training programs ensure that privileged individuals receive such organizational rewards as high earnings and promotions. These individuals may derive their privileged status through association with politically powerful members of the firm, family connections with firm owners (in family-owned businesses), or more abstractly, the inheritance of the proper social class affiliations. Under this version of the

screening hypothesis, training does not simply rank order individuals for the distribution of organizational rewards but insures that the "right" persons receive these rewards.

According to the human capital model, a second major consequence is that employees in whom the firm has invested are less likely to experience bouts of unemployment. The rationale for this prediction follows from the previous argument concerning how training costs are financed. Specifically, if trained employees are laid off, then the firm may lose the opportunity to capture the costs of its investment in human capital. Note that these costs include not only the direct and indirect expense associated with the training programs themselves, but also the expense associated with the firm's personnel procedures which identified certain employees as trainable in the first place.

These two propositions can be summarized in terms of the following hypotheses (positively stated):

- Employer-provided training is positively associated with individual earnings,
- Employer-provided training is negatively associated with individual unemployment.

Rather than treating all occupational categories simultaneously, these two hypotheses will be tested for each of the three occupational categories--professional and technical workers, managers and administrators, and craftsmen--identified as significant in our analysis of the survey of

adult education (Tierney 1983). Prior to testing these hypotheses, however, an attempt will be made to determine what attributes are associated with those individuals receiving training. For instance, are certain types of professional and technical workers more likely to receive training? Identification of such attributes would indicate that the personnel policies and practices of most firms tend to rely upon the same criteria. The inability to identify such factors would indicate that such policies and practices are likely firm-idiosyncratic.

Study Design

The data examined in this study are strictly cross sectional, a fact which has two immediate implications. First, any association between an independent and dependent variable must be considered an effect that would be found in the long run. For instance, a positive association between receiving employer-provided training and an individual's earnings would be expected to manifest itself over some period of time, at the very least until after the employee has completed the training and the payroll system has been updated to reflect that worker's additional productivity. If there is any lag between receiving training and increased earnings, then a longitudinal data set would be needed to identify this lagged effect.

Second, one should be careful interpreting coefficients in such studies. A positive association between training and earnings could be interpreted to mean that receiving training results in higher earnings (the human capital interpretation) or that individuals with higher earnings are receiving training (the screening hypothesis interpretation), or even the third hypothesis, that training is reserved for high earners. Without additional design controls, it is not possible to distinguish among these interpretations.

Dependent Variables. Variation in three dependent variables will be examined in the subsequent analyses. These variables are (1) the probability of receiving employer-provided training, (2) individual earnings per week, and (3) the probability of experiencing any unemployment. Each of these variables is discussed below.

An important, preliminary question in this study is whether it is possible to predict who, according to the 1981 May Current Population Survey, received employer-provided training in the private sector. "Employer-provided" is that training provided by the employer for employees. As described elsewhere, this training tends to be concentrated in business courses, engineering or computer science activities, or health-related areas (Tierney, 1983).

What is the impact of these employer-provided courses on employees? As hypothesized in the preceding section, those employees receiving employer-provided training should have higher earnings than their untrained peers. A positive association also would occur even if those individuals with higher earnings were being trained. Earnings in this study are defined in terms of earnings per week. This measure is a before-tax measure and does not include unearned income.

The other area of potential impact investigated in this study is the unemployment experiences of employees who receive corporate training. Initially, the unemployment variable was operationalized as the number of weeks unemployed during the same year in which the employee either did or did not receive training. However, this variable proved to have very little dispersion for the three occupational categories used in this study (professionals, managers, and craftsmen) and had to be abandoned. Consequently, unemployment was limited to whether an individual experienced any unemployment during that year. It is safe to assume that whatever unemployment was experienced, it was very short in duration.

Independent Variables. A series of demographic and labor market variables are included in subsequent analyses to control statistically for differences between those receiving and those not receiving training. The demographic

variables are; age (a continuous variable), gender (1 = male and 2 = female), race (1 = white and 2 = non-white), and two education dummy variables. One education dummy variable indicated whether a person had some college-level education, and the other captured whether a person had attained at least a bachelor's degree. Given the way in which these education variables were created, the reference group is those individuals who did not go to school beyond high school.

The labor market variables developed for this study require somewhat more elaboration. One variable was the usual number of hours worked by an individual. Second, a series of dummy variables was created to capture the industry in which an individual was employed. While these dummy variables are self-explanatory, it is important to note that the residual category includes the following industries: agriculture, construction, and miscellaneous services.

The two remaining labor market variables involved computing mean scores for each of the 44 major SMSAs in the country, and then merging the appropriate means back onto an individual's record. In the first instance, the average unemployment rate, across all three occupational categories, was computed. For the remaining variable, the average earnings across all three occupational categories also was computed. However, each individual's earnings per week was

Table 1

Means and Standard Deviations
For Selected Independent Variables
By Occupational Category

Variable	Occupational Category: Professional and Technical Mean	Std Dev	Managerial Mean	Std Dev	Craftsmen Mean	Std Dev
N	6192		5586		7788	
Age	37	12	40	13	37	13
Gender (1=Male)	1.40	.49	1.28	.45	1.07	.25
Race (1=White)	1.09	.28	1.04	.21	1.08	.27
Some College	.24	.43	1.04	.44	.18	.39
At least a B.A.	.57	.50	.35	.47	.05	.23
Mining	.01	.14	.01	.11	.02	.18
Manufacturing	.27	.44	.20	.39	.40	.48
Transportation and Public Utilities	.06	.24	.07	.26	.11	.32
Trade	.04	.20	.36	.48	.12	.33
Finance, Insurance and Real Estate	.04	.19	.13	.34	.01	.08
Hours Worked per Week	39	11	43	9	41	6

then divided by the average earnings for that individual's SMSA to derive that individual's relative earnings. This relative earnings variable was then used in the analysis of individual training probabilities.

Table 1 presents the means and standard deviations for selected independent variables for each occupational category. While the data presented in this table are fairly clear, three comments are in order. First, the average age tends to be in the late thirties, an observation that should be kept in mind when interpreting subsequent coefficients. Second, the coding of the gender and race variables as

either "1" or "2" yields somewhat unusual means. To find the proportion of a sample that is male (or white), simply subtract the displayed mean from "2." To find the proportion that is female (or non-white), simply subtract "1" from the observed mean. The remaining mean values for the dummy variables can be interpreted as proportions. Third, note the total unweighted sample size. In subsequent analyses, these sample sizes are substantially reduced due to missing values on one or more variables.

Results

Table 2 displays summary statistics for the three dependent variables employed in this study. It is apparent that professional and technical workers are the most likely to receive training with a one-in-eight chance, followed by managers with a one-in-twelve chance, and with craftsmen bringing up the rear with a one-in-seventeen chance of receiving employer-provided training. For comparison purposes, the corresponding probabilities of having one's employer pay at least part of the cost of instruction given elsewhere is displayed as well. (The use of this employer-paid variable will be limited to its inclusion as an independent variable in the earnings equation.)

Surprisingly, the differences between mean earnings per week for these three occupational categories is not that great. However, managers still average the highest weekly

Table 2

Summary Statistics for
Probability of Receiving Training,
Earnings Per Week, and Probability
of Experiencing any Unemployment

Dependent Variable	Occupational Category: Professional and Technical	Managerial	Craftsmen
Probability of Receiving Training			
Employer-provided	.12	.08	.06
Employer-paid	.06	.04	.01
Earnings per Week			
Mean	351	386	340
Standard Deviation	184	195	149
Probability of Experiencing Any Unemployment	.03	.03	.08

earnings, followed by professional and technical workers, with craftsmen again in third place. One should note that the Bureau of the Census limits this variable to a three-byte field, thus truncating higher wage earners in each occupational category.

Finally, professional employees and managers are not likely to experience any unemployment during the year while one-in-twelve craftsmen are. Thus, even though a simple dummy variable was developed to measure incidence of unemployment, the low probability of experiencing unemployment among the first two occupational categories made it

impossible to develop a very sophisticated model of unemployment experiences.

Training Probability. Returning to the employer-provided training variable, is it possible to develop an adequate model of who does and does not receive training? This is not an idle question. If an adequate model can be developed, then one can conclude that similar criteria are used by firms to identify who is trainable. Such a result, particularly if variables such as educational attainment are associated with the receipt of training, would tend to substantiate screening hypothesis interpretations. On the other hand, if an adequate model cannot be developed, then one is forced to conclude that the criteria used by firms to identify trainable employees are idiosyncratic to the firm. In other words, receipt of training is primarily a function of the values and norms that a firm seeks to instill in its employees.

Table 3 presents the results of conditional logit analyses of this dichotomous dependent variable. Attention is directed to the Goodness of Fit measures at the bottom (McFadden, 1968; pg. 124). The answer to the question posed in the preceding paragraph is that it is not possible to develop an adequate model training probability. These very low "R^2" analogs indicate that receipt of training is not related to a linear (in its parameters) composite of these independent variables. (Further, this table presents the

Table 3

Variables Associated
with the Probability of Receiving
Training by Occupational Category

	Occupational Category					
	Professional and Technical		Managerial		Craftsmen	
Variable	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error
Intercept	-2.85	.80	-2.87	1.48	-3.97	1.18
Age	.01	.008	.03*	.03	-.02*	.009
Gender	.58*	.19	.86*	.29	.80*	.39
Race	-.57	.38	-1.37	1.02	-1.52*	.72
Some College	.45	.28	-.12	.31	.75*	.23
At least a B.A.	.48	.25	.22	.30	.60	.40
Average SMSA unemp	-.47	.35	.43	.23	.08	.24
Earnings relative to SMSA average	.55*	.19	.52*	.26	.94*	.24
Usual hours worked	.009	.009	.02	.01	.04*	.02
Goodness of Fit	.027		.044		.067	
N included	1365		1041		1779	

*significant at the .05 level.

results of only one modeling attempt. Other attempts met with equally inadequate results.) Thus, it would appear that receipt of employer-provided training is firm-idiosyncratic.

While the overall equations do not fit these data, it is possible that displayed logit coefficients are accurate in terms of both their sign and magnitude. Only three variables in these logit models are statistically significant at the .05 level; age, gender, and relative earnings. There is a slight negative weight for age in the managerial and craftsmen equations, indicating that workers who tend to be

younger than the mean ages of 40 and 37 (Table 1) are more likely to receive training. This finding is consistent with the other findings in which most of the training is delivered to persons 25-34 years of age (Tierney, 1983).

The positive coefficient on gender indicates that everything else being equal, women are more likely to receive training. Such a finding would indicate that affirmative action plans are having the desired effect of overcoming the past effects of gender discrimination. As has been pointed out elsewhere, most of the absolute increase in private, employer-provided training has occurred among women (Tierney, 1982).

The positive coefficient on the relative earnings measure indicates that most training is being directed toward higher paid workers, after controlling for SMSA wage rates for these three occupational groups. Following the human capital model, this result would indicate that firm training is being directed toward a firm's more productive workers. Although no data are available, it is probably the case that the firm already has made substantial investments in these persons.

Surprisingly, three variables do not seem to be associated with the probability of receiving training across these three occupational categories. Two of these variables are the dummy variables for educational achievement. Only

in the case of craftsmen is "some college" positively associated with receiving training, a result that is again consistent with the human capital model.

The remaining variable that is not associated with receipt of training is race. In fact, race is negatively associated with the probability of receiving training for craftsmen, indicating that non-whites are less likely to receive training when the otner variables in this model are controlled.

Earnings per week. Even though it is not possible to develop an adequate model of who receives training, it is possible to develop one for the impact of training on earnings per week. Table 4 displays the results of three multiple regression, data analytic procedures for estimating the earnings per week of professionals, managers, and craftsmen.

The first conclusion to be drawn from this table is that these three models fit the data very well, especially given the fact tnat stratifying by occupational category results in a relatively homogenous sample. The R^2 values of .38, .33, and .24 are quite substantial given that in excess of a thousand unweighted individuals are being analyzed in each category. Thus, individual earnings per week can be adequately modeled.

Of even more importance is the positive association between employer-provided training and earnings per week.

Table 4

Variables Associated
with Earnings Per Week by
Occupational Category

	Occupational Category					
	Professional and Technical		Managerial		Craftsmen	
Variable	Coeff	Std Error	Coeff	Std Error	Coeff	Std Error
Intercept	97.79*	33.15	201.28*	50.21	50.54	31.13
Age	2.15*	.33	2.24*	.41	2.58*	.24
Gender	-87.75*	8.87	-125.71*	11.71	-85.45*	12.89
Race	-17.88	14.71	-11.63	24.22	-24.74*	11.21
Some College	35.91*	11.75	40.37*	12.26	29.25*	7.80
At Least a B.A.	78.06*	10.48	83.38*	12.45	36.68*	14.56
Mining	130.88*	33.16	152.87*	62.01	29.85	20.75
Manufacturing	82.18*	9.96	57.42*	16.26	2.23	7.37
Transportation and Public Utilities	33.52	17.09	76.18*	20.19	45.61*	10.60
Trade	41.04*	19.96	-36.76*	14.23	-56.83*	10.50
Finance, Insurance, and Real Estate	70.16*	10.03	34.68*	17.46	-81.83*	39.84
Hours worked per week	5.90*	.39	5.19*	.60	7.28*	.50
Employer-Provided Training	35.65 *	12.14	25.50	19.31	47.41*	13.33
Employer-Paid Training	61.00*	16.48	35.80	24.69	20.07	26.43
R^2	.38		.33		.24	
N included	1365		1041		1779	

*significant at the .05 level

However, this association is found only among professional and technical workers, and craftsmen. Conspicuously absent is any association between these variables for managers. As noted earlier, one must be cautious in interpreting these coefficients.

The positive association between earnings and training is maintained even when a variety of additional variables are controlled, including other, employer-paid course

activities. In the case of this variable, there is a positive association with earnings only in the case of professional workers. Again, there is no association between employer-paid training and earnings for managers. The lack of association for craftsmen is attributable primarily to the small frequency with which these employees receive such training (Table 1).

Five other variables are associated with individual earnings: age, gender, educational achievement, and hours worked per week. Age is positively related to earnings as one would expect from standard, age-earnings profiles. Earnings per week are positively related to the usual number of hours one works per week, also as one would generally expect. There does not appear to be any evidence of substituting leisure time for work at these wage rates. Both educational achievement dummy variables are positively related to individual earnings in each occupational category, another result widely found in the literature on earnings functions.

One finding is somewhat disheartening but not unexpected. There is a negative relationship between gender and earnings in these three occupational groups. Thus, women are paid less then men, even when other variables are statistically controlled.

Unemployment Incidence. As noted earlier it was not possible to model the length of or incidence of unemployment within these three occupational categories due to the very limited dispersion in these two measures of unemployment. Consequently, the association between employer-provided training and the incidence of unemployment is limited to Table 5.

In the top half of this table, the number of unweighted individuals receiving and not receiving employer-provided training is displayed by occupational category. For instance, 725 professional and technical workers reported receiving employer-provided training in 1981. These individuals represented 12 percent of all professional and technical workers in the 1981 May CPS. (This 12 percent corresponds to the .12 proportion in Table 1.)

In the lower half of this table, the number of workers experiencing any unemployment during the year are displayed. Thus, eight professional and technical workers who had received employer-provided training, experienced some unemployment, although typically quite short. These individuals constituted slightly more than one percent of the professional workers who received employer-provided training. By way of comparison, over 3 percent of professional workers not receiving training experienced some unemployment. This latter percentage always exceeds the former, ranging anywhere from 50 percent (for managers) to

Table 5

Incidence of Unemployment
Among Private Employees Receiving
Employer-Provided Training
by Occupational Category

	Occupational Category					
	Professional and Technical		Managerial		Craftsmen	
	N	%	N	%	N	%
Total	6162	100	5586	100	7788	100
Receiving training	725	11.7	427	7.7	458	5.9
No training	5467	88.3	5159	92.4	7330	94.1
Incidence of Unemployment						
Receiving training	8	1.1	7	1.6	6	1.3
No training	174	3.2	150	2.9	605	8.2

800 percent larger (for craftsmen). On the basis of these data, it is apparent that those individuals receiving employer-provided training are less likely (sometimes substantially) to experience any unemployment.

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COMPANY TRAINING, EMPLOYMENT STABILITY, AND EMPLOYERS' NEEDS AND PRACTICES

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Introduction

In this progress report, we review the results concerning company training programs from three separate surveys of both employees and employers. In Part I we present results from panels of black and white prime age males and of black and white young men. Our focus in Part I is on the implications of the receipt of formal private sector company training for respondents' employment experiences. In Part II we present results from surveys of employers completed in three Michigan counties. Our focus in this part is on the relationships between firms' characteristics and the human resources needs the employers profess to have.

Part I: Company Training and Workers' Employment Stability

A. Preliminaries

In human capital theory[1] a distinction is made between "general training" (that increases an individual's productivity to many employers equally) and "specific training" (that increases an individual's productivity only at the firm in which he or she is currently employed). Pure general training, what we often think of as formal schooling, includes instruction in accounting skills, or instruction,

[1] See Becker (1975).

for a would-be carpenter, on how to use a screwdriver or wrench. Pure specific training includes teaching a worker how to use a machine that is unique to a single employer or how the billing process works in a particular firm. Although most training contains aspects of both types, the distinction allows us to consider the implications of human capital investments in individual workers made by firms separately from investments that individuals make themselves.

Rather than focusing on the monetary returns to training, which have been extensively documented in the human capital literature,[2] this part of our paper focuses on the implications of firm-specific training for the employment stability of recipients. In other words, we ask whether workers who have firm-specific training are more or less likely to quit or be fired than workers without firm-specific training.

It has long been argued that, ceterius paribus, employers are reluctant to lay off workers who they have trained since firm-specific training may increase the workers "marginal product" to the specific firm. Similarly, workers who have received firm-specific training are less likely to quit since their training is more valuable to the current employer than to other employers and will therefore command a higher wage in the current firm of employment. Correlatively, employers will have greater incentives to lay off workers in whom they

[2] See for example Rosen 19 RLE.

have made comparatively little investment in the form of training. For these reasons, we expect to find a negative relationship between the reception of company training and the stability of the employment relationship.

B. Empirical Analysis

To empirically analyze the relationship between company training and subsequent employment stability, we use the Panel Study of Income Dynamics (PSID) and the new National Longitudinal Survey of Youths (NLS). We also look at some preliminary results from the National Longitudinal Study of the High School Class of 1972. We have chosen these samples since they allow us to examine the experiences of both recent labor force entrants and workers with substantial labor force experience.

The Panel Study of Income Dynamics includes a national sample of American families surveyed annually from 1968 to 1979.[3] The sample has changed substantially since 1968 as families change through birth, marriage, death, divorce, and as children leave home. Each year extensive information on the household head and supplementary information about other family members is collected. The information necessary for our analysis is available, therefore, only on household

[3] The original sample of approximately 5,000 families oversampled blacks and the economically disadvantaged. For this reason, weights which allow our results to be generalized to the U.S. population (cite 1978 codebook) are used in the regression analysis below.

heads. The subset of respondents used in this study includes only the following groups:

- male household heads 18-64 years of age in 1968,
- blacks and whites (this excludes approximately 150 hispanics and others),
- those respondents continuously in the labor force from 1968-1979 (i.e. the employed, unemployed, and temporarily laid off), and
- heads of the original households.[4]

We note at this point that by excluding those respondents who move out of the labor force, we focus on the most stable group in the work force. The results should be viewed with this in mind.

The National Longitudinal Survey of Youths includes a national sample of young people, 14-22 years of age in 1979. The original data set consists of three parts: a cross sectional sample of all youths age 14-22 in 1979, an oversample of blacks, hispanics and the economically disadvantaged, and a sample of young people on active duty in the military. The subset of respondents used in the present analysis includes only male respondents who were 16-22 years of age in 1979 and who were included in the cross sectional sample.[5]

[4] The PSID is a "self-replacing" panel in which household members who leave home (e.g. through marriage or divorce) are added as new households to the sample.

[5] The cross-sectional sample is a random sample of the youth population.

In order to make the analysis of these two samples most closely comparable, we examine the respondents' 1978 reported training experience as it affects their 1979 and 1980 employment stability.

In particular, we examine two issues. First, are those respondents who report having received training from their firm of employment,[6] more or less likely to separate from their job (either at their discretion or the employer's) than (1) those who received training from outside the firm, and (2) those who received no training at all? Second, are those respondents who reported having received training from their firm of employment more or less likely to have stable employment experiences than (1) those who received training from outside the firm, and (2) those who received no training at all?

Company training in both samples is measured as a dummy variable which equals one if the respondent reported that he received company training from his firm of employment. In particular, for those who reported receiving training or schooling beyond formal education, "company training" equals one if the respondent reported that the schooling or training was company specific or a company training program.

[6] Our results must be tempered by the fact that workers may have misreported the reception of company training. It is impossible to know whether workers accurately report apprenticeships, on-the-job training, and the like.

We can look first at some descriptive statistics on the company training experience of the respondents in our two samples. It is interesting to note that in both samples, whites are more likely than blacks to be involved in employer-provided training (Table 1). As a matter of fact, no nonwhites in the NLS youth sample reported having received company training. For this reason, we limit our analysis of the NLS youths to the descriptive statistics reported below. At the end of this section, we present some preliminary results from the Class of 1972 data.

Table 1

Number and Percent of Respondents in Each Sample Receiving Company Training in 1978 By Race

	PSID		NLS	
	Percent	Number	Percent	Number
White	5.32	52/978	1.8	18/978
Nonwhite	2.56	8/313	0.0	0/313

Table 2 supports our colleague Tierney's finding that most employer provided training goes to employees 25-44 years of age. It has been argued that this is partially a result of minimum wages: according to the argument, firms will offer general training only if the employee fully pays for it (in terms of a lower wage during training), and firms will offer specific training only if costs are shared. For the result to be interpreted in this fashion, wages during the training period must be below actual marginal productivity by

an amount equal to the employee's share of the direct costs of training. If the minimum wage precludes such a low wage to be paid, the argument concludes, then emloyers will not offer training to the emloyees. Finally, the argument holds that rational employers would most probably apply the logic outlined here to inexperienced youth and, otherwise, to low-skilled and modestly educated workers in general.

Table 2

Number and Percent of Respondents in Each Sample In Each Age Group Receiving Company Training in 1978

	Percent	Number
PSID (28 years old +)	4.6%	45/978
NLS (16-22 years old)	1.6%	20/1266

In fact, in both, employers preferred to train people with at least a high school degree (Table 3).

Table 3

Number and Percent of Respondents in Each Sample In Each Educational Achievement Category Receiving Company Training in 1978

	PSID			NLS			CPS
Yrs of School	wh	bl	tot	wh	bl*	tot	tot
0-11	4.9	3.7	4.3	1.1	0.0	1.0	NA
12	11.2	0.0	9.3	1.7	0.0	1.5	NA
13-15	0.0	0.0	0.0	2.9	0.0	2.8	NA
16 or more	0.0	0.0	0.0	25.0	0.0	25.0	NA
TOTAL N	976	312	1288	1117	134	1251	NA

There are also substantial differences in provision of company training across major industry and occupation groups (Tables 4 and 5). Although there are no apparent patterns in the industry breakdown as we suggested above, company training is much more common in the higher-skill occupation groups than in the low-skill occupation groups.

Table 4

Number and Percent of Respondents in Each Sample
In Each Major Industry Group
Receiving Company Training in 1978

	PSID				NLS			
	wh		bl		wh		bl*	
	%	No.	%	No.	%	No.	%	No.
agriculture	0.0	0/55	0.0	0/13	0.0	0/75	0.0	0/5
mining	0.0	0/10	0.0	0/1	0.0	0/10	0.0	0/1
manufacturing	5.0	16/303	1.0	1/98	1.3	3/231	0.0	0/36
const, trans, utilities	7.4	12/163	2.6	2/78	3.1	4/127	0.0	0/16
trade	6.6	9/136	5.6	2/36	1.2	5/408	0.0	1/39
fin, ins, real estate	2.3	1/43	16.7	1/6	5.6	1/18	0.0	0/2
services	1.6	3/185	2.0	1/50	2.6	6/232	0.0	0/30
government	14.5	12/83	3.3	1/30	4.8	1/21	0.0	0/3
other					0.0	0/8	0.0	0/4
TOTAL N	978		312		1130		136	

* Nonwhite

Table 5

Number and Percent of Respondents in Each Sample
In Each Major Occupational Group
Receiving Company Training in 1978

	PSID				NLS			
	wh		bl		wh		bl*	
	%	No.	%	No.	%	No.	%	No.
prof,tech & kindred	2.5	4/161	0.0	0/12	5.3	0/38	0.0	0/4
mngrs, offcls, prop. sales	3.2	6/185	8.0	1/12	0.0	0/92	0.0	0/6
clerical & kindred	7.0	7/100	5.0	1/20	3.5	0/87	0.0	0/11
crafts, formn & kindred	9.2	23/251	6.0	5/73	1.8	3/171	0.0	0/19
operatives & kindred	5.2	7/135	0.0	0/92	0.6	1/175	0.0	0/23
laborers, srvce (exc. farm)	2.0	1/51	0.1	1/84	2.2	11/495	0.0	0/68
farm laborers & foremen	0.0	0/43	0.0	0/0	0.0	0/61	0.0	0/5
others	8.0	4/51	0.0	0/19	0.0	0/11	0.0	0/0
TOTAL N		978		312		1130		1266

* Nonwhite

The PSID data were also analyzed in a more detailed statistical treatment. We examined the probabilities of respondents receiving company training while controlling for a number of human capital and non-human capital variables. To put it another way, we asked whether respondents' own personal traits or whether traits descriptive of their employment situations are better predictors of their likelihood of being the beneficiaries of company training. Figure 1 includes the definitions of the variables included in our model.

Figure 1

Definitions of Variables: PSID

INT	= Intercept
MNYQUAL	= 1 if respondent thinks many qualify for his job
AGE	= age in 1973
STEST	= 0-13 score
EDUC	= years of education
MARITAL	= 1 if married
NKIDS	= number of children
FOCC	= father's occupation
FED	= father's education
MJOB	= months on current job
UNION	= 1 if job covered by collective bargaining
OCC	= Duncan SEI score
UNEM	= unemployment rate in local area of residence
IND	= industry unemployment rate
HELP	= 1 if received help getting job
ANNWAGE	= annual wage

Because our dependent variable, the receipt of company training, is discrete, we use a logistic regression. The probability coefficients, in the two left-hand columns for white and black men, respectively, are interpretable as the contribution of each variable listed on the left side of Table 6 to the probability that an employer provides training. The coefficients are the transformations of the logit coefficients which tell us the log of the odds of company training occurring with one unit of change in each of the independent variables.

The results of the logistic regression show that none of the independent variables contribute significantly to the probability that black men will receive training from their companies.

The probability that white men will receive company training diminishes significantly with increases in formal education, with seniority on the job and with increased unemployment rates.

Given the substantial patterned differences among races, educational and occupational groups observable in the descriptive statistics and the race differences in the logistic regressions, we chose to examine the relationship between employment stability and company training using multiple regression techniques.

Table 6

Probability of Receiving Company Training: Panel Study of Income Dynamics

	White Men			Black Men		
	Probability	Mean	Logit Coeff.	Probability	Mean	Logit Coeff.
INT	0.004	1.0	0.16	0.003	1.0	0.50
MNYQUAL	-0.003	0.40	-0.12	0.00	0.48	0.01
AGE	-0.001	30.66	-0.01	-0.001	30.23	-0.05
STEST	0.004	10.04	0.14	0.001	8.01	0.04
EDUC	-0.006*	12.70	-0.24*	-0.001	11.15	-0.16
MARITAL	-0.002	0.83	-0.09	0.007	0.76	1.22
NKIDS	0.003	1.36	0.12	-0.002	1.67	-0.41
FOCC	-0.001	31.11	-0.02	0.00	19.08	0.01
FED	-0.0002	10.31	-0.01	0.0006	8.16	0.12
MJOB	-0.0002*	58.39	-0.01*	-0.0002	61.96	-0.01
UNION	-0.004	0.27	-0.17	-0.006	0.32	-1.02
OCC	-0.00	39.26	-0.01	-0.00	27.47	-0.01
UNEM	0.002	5.26	0.07	-0.001	5.34	-0.26
IND	-0.006*	6.02	-0.22*	-0.002	6.08	-0.34
HELP	0.011	0.37	0.42	-0.006	0.36	-1.16
ANNWAGE	0.00	15,000	0.00	0.00	11,782	0.00
D**	0.028			0.021		
N	1,277			509		

* sig. at .05 level ** comparable to r-squared

The dependent variables were chosen to test the hypotheses that (1) workers who receive training from their employers are both less likely to be fired since the employer has invested in them, and are less likely to quit since their marginal product is higher in that firm than in other firms, and (2) company training, because it is most probably firm-specific, should not impart a comparative advantage on trainees in their subsequent employment experience outside the firm of training. In order to estimate the relationship, we use three dependent variables: (1) a dummy variable which equals 1 if the respondent separated from the 1978 job within the 1979-1980 survey period, (2) a dummy variable which equals 1 if the respondent experienced at least one bout of unemployment between the 1978 survey and the 1980 survey, and (3) the total number of weeks of unemployment between the 1978 survey and the 1980 survey.

As mentioned above, we capture company training as a dummy variable which equals 1 if the respondent received training from the firm in 1978. The other explanatory variables in the model can be divided into three groups: human capital characteristics (other than training), job specific characteristics, and labor market characteristics.

Older respondents[7] are expected to be more stable than others. Those with higher educational achievements and

[7] See Mincer and Jovanovic (1974) for substantial evidence that all types of turnover decrease with age and that the relationship between turnover and age diminishes with time, and with mental status.

ability (as measured by the Sentence Completion Test[8]) may be expected to be more stable as well.[9] Personal efficacy[10] is included to capture the degree of control that individuals feel over their lives; occupation and education of the respondents' fathers are included as measures of the respondents' family background.

Four job-specific explanatory variables are included in the analysis. Union members are exected to exhibit more stable employment[11] as are workers in more highly ranked occupations.[12] Workers in industries with high national levels of unemployment are expected to face higher probabilities of unemployment than others. Finally, dummy variables for primary and tertiary industries are included (secondary industries were the excluded category) to capture industry-specific effects.

[8] This has been used as a measure of ability. See for example Duncan and Hill (1980).

[9] Mincer and Jovanovic (1981) provide ample evidence for this expectation.

[10] Describe personal efficacy measure.

[11] Farber (1980) and Freeman (1981) find significant reductions in quit behavior associated with unionism.

[12] As measured by the Duncan SES.

Three labor market controls are included: (1) the 1978 unemployment rate in the place of residence, (2) the percent change in total population from 1960-1970 for the place of residence and (3) median school years in the place of residence.

Controlling for these variables, we estimate the job separation equation and the two unemployment equations for blacks and whites in the PSID sample. As we expected, company training is not a significant predictor of the incidence (whether unemployed 1979-1980) or duration (weeks unemployed 1979-1980) of post training experience outside the firm. However, we are somewhat surprised to find that company training is also not a significant predictor of job separations. This result implies that firm-specific training, controlling for human capital and labor market characteristics, does not lead to lower quit or fire rates as suggested by one widely held theory. This result may be due, in part, to the distribution of company training across the two samples. Since those workers who are most stable[13] are also the recipients of company training, the separate effects of company training do not appear in our equations.[14] It should also be mentioned here that our sample includes the most stable portion of the population: prime age males who are continuously in the labor force. The results must,

[13] See Lane, Berg and Shack-Marquez for evidence on this.

[14] When occupation and education are excluded from the equations, however, the results do not change.

therefore, be tempered when compared to results using national cross sectional samples such as the Current Population Survey.

In conclusion, our results indicate that, independent of human capital characteristics, the effect of firm-specific training on employment stability is insignificant.

To supplement these results, we present a preliminary examination of the National Longitudinal Study Class of 1972 data. This data set includes a random sample of the 1972 high school class in the United States. We focus exclusively on the male students. The variables used in the analysis are similar to those in the analysis of the PSID although they are more detailed (see Figure 2 for definitions and column 1 of Table 7 for means).

As can be seen in the second column of Table 7, we are unable, once again, to explain much of the variance in employer-sponsored training. Blacks are slightly less likely than whites to receive company training. Young men with higher grade point averages are slightly less likely to receive training than those with lower grade point averages. Those who have certificates, licenses, and two year academic degrees are more likely to receive training than those who do not.

Rather than focus again on employment stability, we concentrate here on other returns to employer training. What we can see in columns 3 and 4 of Table 7 is that, controlling

for a wide range of individual and labor market characteristics, male high school seniors with employer-sponsored training can expect higher average monthly income and jobs with higher occupational status than those without training.

Figure 2

Definitions of Variables: Class of '72 Model

TRAINING	1 if employer-sponsored training, 0 otherwise
GPA	grade point average in high school; 1=high, 14=low
APTITUDE	1=low, 2=high
SES	parent's socioeconomic status; 1=low, 3=high
ENERGY	level of energy; 1=low, 8=high
PLANNING	1=never, 8=always
AMBITION	1=high, 8=low
PROF	professional vs. craftsman
MNGR	manager vs. craftsman
SALES	salesperson vs. craftsman
CLER	clerical vs. craftsman
OPER	operative vs. craftsman
TRANS	transport worker vs. craftsman
LABOR	laborer vs. craftsman
SERVE	service worker vs. craftsman
RACECH	chicano vs. white
RACEAS	asiatic vs. white
RACEBL	black vs. white
MED	medium sized city vs. small city
LARGE	large city vs. small city
VLARGE	very large city vs. small city
NEAST	northeast vs. west
NCENT	north central vs. west
SOUTH	south vs. west
CRED1	certificate
CRED2	license
CRED3	2 or 3 year diploma
CRED4	2 year academic degree
CRED5	BA
CRED6	MA or other
INCOME	average monthly income
HSAC	1=high school program academic
DUNCAN1	Duncan SEI, 1st full time job

Table 7

Means and Regression Coefficients for Analysis of Employer-Sponsored Training

	MEAN	TRAINING	SEI	INCOME
TRAINING	0.180		3.2477*	10.1102
RACEBL	0.094	-0.0159	-1.2623	-20.6408*
RACEAS	0.012	-0.0668	2.6237	-12.1694
RACECH	0.0077	-0.0028	1.3443	-7.6005
SALES	0.017	0.1171	11.8694*	-13.8962
TRANS	0.050	-0.0780*	-3.8929*	6.4414
SERVE	0.070	0.0076	-6.1924*	-25.3039*
MNGER	0.091	0.0423	13.7327*	0.5486
CLER	0.089	-0.0335	4.0998*	-20.2301*
LABOR	0.108	-0.0531	-4.5335*	-9.6859*
OPER	0.130	-0.0172	-4.3434*	0.6434
PROF	0.170	-0.0318	20.1517*	2.7509
PLANNING	5.892	0.0068	0.3301	1.7512*
AMBITION	2.636	-0.0096	-0.4879*	-2.5948*
GPA	8.059	0.0072*	-0.4311*	0.0082
SES	1.997	-0.0013	2.2880*	3.8645*
ENERGY	5.771	0.0072	0.1636	-0.4019
APTITUDE	1.986	0.0468*	2.5845*	-5.1305*
LARGE	0.185	0.0245	1.8264	-1.6481
MED	0.134	0.0082	3.2640*	4.2174
VLARGE	0.185	0.0282	4.1585*	4.1895
NCENT	0.282	-0.0364	0.0561	-9.7713*
NEAST	0.199	-0.0392	0.4479	-20.6959*
SOUTH	0.361	-0.0013	1.7263	-17.6332*
CRED3	0.037	0.0623	0.8956	-7.7621
CRED4	0.043	0.0869*	3.5493	-5.4236
CRED2	0.055	0.1049*	3.9439*	8.4069
CRED1	0.120	0.1815*	0.1886	3.4303
CRED6	0.030	-0.0560	6.6506*	14.6362*
CRED5	0.223	0.0063	10.7051*	1.3696
HSAC	0.424	0.0183	0.7626	2.8871
CONSTANT	1.0	-0.0418	25.0625*	163.2721*
R^2		0.0427	0.4067	0.0637
N	2443	2443	2443	2443

Part II: Corporate Needs and Corporate Training Programs

A. Preliminaries

The vast literature on personnel practices in organizations, collective bargaining practices aside, leads us to expect that smaller firms, especially locally-owned ones, would have far less rationalized and routinized personnel procedures and that they would place less of a premium on "in-house" training than larger organizations. Larger and reputedly more rationally bureaucratic organizations, judging from this literature, not only can afford more elaborate selection, promotion, and training arrangements but are more likely to be run by employers whose professional training in management would reflect quite different values; smaller firms would be more inclined, in the current jargon, to "ad-hocracy" than bureaucracy as a guiding principle of human resources management.

In this section we present some preliminary results of an examination of the personnel practices of smaller and larger firms of different ownership types in three Western Michigan counties. The data come from surveys on the hiring and training practices of private business firms in Muskegon, Oceania, and Ottawa counties in 1979 and 1980 (Muskegon and Oceania were surveyed together and are treated as one county). These counties are heavily industrialized and all three of them have experienced unemployment at rates higher than the national average for nearly a decade.

Mail and telehone surveys, by the Muskegon and Ottawa County Departments of Employment and Training, were directed to the individual most responsible for hiring and training employees in the surveyed firms. 199 firms in Muskegon/Oceania and 360 firms in Ottawa counties responded. Of these firms, 151 firms in Muskegon/Oceania and 351 in Ottawa provided sufficient responses to be included in the analysis. The questions in the survey dealt with five major issues: (1) Hiring policies for entry level, unskilled and skilled workers; (2) promotion policies for existing workers; (3) training programs provided by firms; (4) perceived labor market conditions; and (5) characteristics of the firms. We have chosen to present the results separately for the two counties since, as we will see below, there are strikingly patterned differences between them.

B. Empirical Analysis

First, we briefly present some descriptive statistics on firm behavior in the two counties and second we present our preliminary analyses of how ownership, firm size and industry are related to various personnel practices. Firms were asked what human capital characteristics they sought when selecting unskilled or entry level workers. The responses were grouped into nine categories which are listed in Table 8 with the percent of respondents/firms in Muskegon/Oceania and Ottawa counties that thought they were important.

Table 8

Characteristics Mentioned as Being Important for Hiring Entry-Level and Unskilled Workers

	Muskegon/Oceania	Ottawa
skill levels	34%	18%
appearance	65	27
past attendance record	78	32
attitude during interview	74	59
verbal communication skills	43	8
how application is filled out	49	5
applicant asks right questions	43	4
content of resume	14	6
applicants commitment to stay	29	10
Total N	151	351

Attitude, attendance, and appearance are the most important characteristics for unskilled and entry-level workers in both samples.

The same questions were posed to representatives of the firms with regard to their selection of skilled workers. The responses are listed in Table 9.

Table 9

Characteristics Important for Hiring Skilled Workers

	Muskegon/Oceania	Ottawa
skill levels	60%	54%
appearance	54	13
past attendance record	69	27
attitude during interview	62	34
verbal communication skills	51	6
how application is filled out	47	2
applicant asks right questions	51	3
content of resume	31	10
applicant's commitment to stay	38	12
Total N	151	351

As we would expect, skill levels play a central role but applicants' attitudes and their attendance records are also judged to be important in hiring skilled workers.

A third set of questions was designed to determine what employee traits each firm stressed in evaluating their existing workers for promotion or continued employment (Table 10). In both Ottawa and Muskegon/Oceania, the respondents placed the most emphasis on the extent to which workers follow the instructions of their supervisors and the least emphasis on compliance with company rules.

Table 10

Characteristics Important for Making Promotions Decisions

	Muskegon/Oceania	Ottawa
follows supervisor's instruction	55%	55%
development of fine skills	44	31
good attendance record	44	53
cooperating with other employees	28	33
compliance with company rules	18	18
Total N	151	351

Next, the respondents were asked about the training programs they provide to their employees; the responses afford an opportunity to gauge employers' differing perspectives about their needs and their own investments in filling their need. Fifty-five percent of the responding firms in Muskegon/Oceania and 46 percent in Ottawa provide training to their new employees. On average, the training programs in Muskegon/Oceania last 16 days, while those in

Ottawa last 18 days. In addition, 63 percent of firms in Muskegon/Oceania and 49 percent in Ottawa have training programs, on the job or in classrooms, for existing employees.

Beyond those questions relating to the personnel practices of the firms, the investigators collected data on the characteristics of firms and firms' perceptions of labor market conditions. Our tally shows, first, that 70 percent of the responding firms in Muskegon/Oceania and 92 percent in Ottawa are locally-owned and, second, that the average firm in Muskegon/Oceania has 98 full-time workers and 8 part-time workers, in contrast to the average firm in Ottawa county with 81 full-time and 70 part-time workers. This discrepancy in average firm size between the two counties is partially an artifact of the data collection process: while the firms in Muskegon/Oceania were selected from a complete list of firms in the area, the Ottawa sample was supplemented with small firms. We accordingly see many more small firms and firms in the trade industry, and fewer absentee-owned firms in Ottawa. The third characteristic relates to whether the number of employees changes during the year or whether the size of the workforce is stable. Employment in Muskegon/Oceania is much more volatile, with 47 percent of firms reporting changes in employment during the year in comparison to only 25 percent in Ottawa. The fourth characteristic is major industrial classification. The table below shows the industry breakdown (Table 11).

Table 11

Industry Classification

	Muskegon/Oceania	Ottawa
agriculture/mining	1%	4
construction	6	5
manufacturing	61	40
transportation	5	3
trade	6	42
finance	16	2
other	5	4
Total N	151	351

Finally, two questions were asked about firms' views of the conditions of the labor market they face. Forty-four percent of firms in Muskegon/Oceania and 46 percent of firms in Ottawa report that they have difficulty filling jobs. And, as can be seen in Table 12, substantially more firms in Ottawa reported a shortage in the available labor supply than did firms in Muskegon/Oceania.

Table 12
Sufficiency of Labor Supply

	Muskegon/Oceania	Ottawa
shortage	14%	38%
adequate	68	57
surplus	18	5
Total N	151	351

With the descriptive statistics in hand, we performed the same type of logistic regression analysis of employers' training offerings as we did of employees' training experiences in Part I. (For a brief explanation of

the use of logistic regression, see the empirical analysis section in Part I above.)

The dependent variables in our models are dummy variables for training progams for new and existing employees. The explanatory variables (see Figure 3) include: (1) the characteristics of firms (ownership, size, seasonal employment changes, and industry); and (2) firms' perceptions of labor market conditions (whether they have difficulty filling jobs and whether the available labor supply is sufficient). The regression results are reported in Tables 13 and 14, one for each of the employer samples, following translation of the tabular independent variables.

Figure 3

Definitions of Variables Used in Employer Analysis

INT	= Intercept
SKLI	= 1 if skill level is important in hiring
HSTR	= 1 if high school affords adequate training
OWNER	= 0 if local, 1 if non-local
SIZE	= number of employees (in 00's)
EMPCH	= 1 if number of employees changes during the year
DIFFIL	= 1 if employer find it difficult to fill jobs
SUFLAB	= 1 if employer thinks there is an adequate supply of workers
CONS	= 1 if construction industry
MANUF	= 1 if manufacturing industry
TRADE	= 1 if trade industry

Table 13

Probability of Firms Providing Training:
Muskegon-Oceania Counties

	TRAINING FOR NEW EMPLOYEES			TRAINING FOR CURRENT EMPLOYEES		
	Probability	Mean	Logit Coeff.	Probability	Mean	Logit Coeff.
INT	0.49*	1.0	1.99*	0.18	1.0	0.81
SKLI	-0.20*	0.35	-0.81*	-0.10	0.32	-0.47
HSTR	0.01	0.21	0.03	0.08	0.21	0.37
OWNER	0.03	0.29	0.12	0.16	0.29	0.70
SIZE	-0.002	1.06	-0.01	0.07*	1.07	0.29*
EMPCH	-0.05	0.46	-0.21	0.01	0.47	0.04
DIFFIL	0.12	0.49	0.51	0.24*	0.42	1.09*
SUFLAB	-0.06	1.04	-0.26	-0.11	1.04	-0.48
CONS	-0.46*	0.06	-1.89*	-0.39	0.07	-1.74
MANUF	-0.43*	0.61	-1.77*	-0.18	0.60	-0.81
TRADE	-0.43	0.06	-1.77	0.14	0.06	0.65
D**		.140			.160	
N		143			143	

* Sig. at .05 level ** comparable to r-squared

Table 14

Probability of Firms Providing Training: Ottawa County

	TRAINING FOR NEW EMPLOYEES			TRAINING FOR CURRENT EMPLOYEES		
	Probability	Mean	Logit Coeff.	Probability	Mean	Logit Coeff.
INT	0.08	1.0	0.32	-0.003	1.0	-0.01
SKLI	-0.002	0.18	-0.01	0.07	0.18	0.29
HSTR	-0.05	0.36	-0.22	-0.02	0.36	-0.08
OWNER	-0.07	0.08	-0.28	0.09	0.08	0.37
SIZE	-0.04	1.00	-0.15*	0.016	1.00	0.06
EMPCH	-0.01	0.25	-0.05	0.024	0.25	0.09
DIFFIL	0.13	0.46	0.54*	0.166	0.46	0.66*
SUPLAB	-0.04	0.68	-0.17	0.037	0.68	0.14
CONS	-0.11	0.05	-0.44	-0.277	0.05	-1.11*
MANUF	-0.08	0.4	-0.31	-0.11	0.4	-0.43
TRADE	-0.14	0.41	-0.55	-0.20	0.41	-0.82*
D**		.046			.064	
N		350			350	

* sig. at .05 level ** comparable to r-squared

The results show that, in Muskegon County, the probabilities of employers in construction or manufacturing industries offering training to new employees for skill needs are on the modest side. Current employees are more likely to be accorded training if the employing firm is a large one and if the firm confronts difficulties in filling vacancies (i.e., if their particular labor markets are "tight").

In Ottawa, size has a negative effect on the training of new workers while difficulties in finding suitable new workers increases probabilities of company training. Current employees are more likely to be given training from employers if employers face "tight" labor market conditions and less likely to receive training if they work in the construction industry or in the retail sector.

C. Discussion

In accord with the suggestions of management and personnel specialists in the literature on human resources, we expected that absentee-owned firms would utilize more impersonal hiring and promotion policies than locally-owned firms. On the basis of data we have ourselves analyzed and reported elsewhere, we anticipated some confirmation of others' findings because, we theorized, absentee owners are less likely to have the ready accesses to personal contacts and social networks so often used by firms in making hiring

and promotion decisions.[15] However, the fundamental conclusion we can draw from the results of our regression analyses is that ownership does not explain, in any significant way, the personnel practices touched upon in the surveys: there are simply no significant differences between local and non-local firms either in the preferences they express regarding new workers' traits, in the way they make hiring and promotion decisions or in their provision of training for employees.

Neither can our model's lack of explanatory power be accounted for, as one might reasonably expect, by firm size. Although size does explain the use of certain personnel policies, there is no clear pattern. It is a little bit surprising, given that large firms have more complicted personnel issues with which to contend, that size is not an even more significant factor. The only statistically significant finding is that larger firms in Ottawa county are more likely to provide training programs to new employees. Recall, though, that the Ottawa sample has many more small retail shops than the Muskegon/Oceania sample and these establishments are necessarily the least likely to provide anything more than on-the-job training.

[15] For a recent empirical analysis, see a report from our large study by J. Shack-Marquez, "Inside Information and the Employer-Employee Matching Process," Fels Institute Discussion Paper #159, University of Pennsylvania, revised September 1982, and M. Corcoran, L. Datcher, and G. Duncan, "Information and Influence Networks in Labor Markets," in 5000 American Families, vol. III, G. Duncan and J. Morgan (eds.) Ann Arbor: Institute for Social Research, 1980.

As we would expect, firms indicating that they encounter difficulties in filling jobs are significantly more likely to provide training programs (and longer training programs) to both new and old employees than are firms that report no difficulty filling jobs. Personnel policies and training programs do differ significantly by industry in our models. However, they exhibit no systematic pattern.

In general, we were only slightly surprised at how little of the variances in personnel policies we could explain using variables generally assigned great weight in the personnel literature. Our surprise was tempered by the following considerations:

(1) Some of the managers in the multiplant, locally-owned conglomerate in Ottawa Co., together with managers in most of the locally-owned firms and some of those in two absentee-owned firms, have learned to have great confidence in the recommendations of one of the senior officials in a branch office of the Michigan Employment Security Commission (MESC). A long time local resident, this official has opportunities to screen the recipients of unemployment compensation on the basis of acquaintanceships and memberships in community groups. In the process, the official's careful "matchup" of employers' needs and would-be workers' traits reduces the need of many employers (of all types of ownnership and of all sizes) for compensatory personnel programs conventionally aimed at fitting workers to jobs. In most of these placements the MESC official operates

almost as much as a friendly contact as a public official.[16] The inclination of employers to use the local MESC office originally derived from employers' needs to do constructive work in support of their obligations under equal opportunity regulations.

(2) The Director of the Ottawa County Department of Employment and Training and his modest staff afford many employer constituents the benefit of the same screening and matching skills and the same "informal" accesses as those afforded by the official in the MESC.

(3) There is a large surplus of skilled workers in virtually every trade and vocation in the counties under study; training programs are thus serving no significant market.

(4) At the same time that there are skill surpluses, many of the unemployed workers making up this surplus are the laid off workers of plants whose militant, democratic unions are among those against whose members the employers in the counties under study are determined to discriminate. This fact makes the respondents' claims that they have difficulty filling jobs (despite skill surpluses) comprehensible.

[16] Once again, for an empirical analysis of the roles of third party intermediaries in the employment process, see J. Shack-Marquez, "Inside Information," Fels Discussion Paper #159, revised September 1982.

(5) Data from the April 1969, 1972, 1975 and 1978 Current Population Surveys of Adult Education in the U.S. clearly show that company training programs are offered in (statistically) disproportionate numbers to white male college graduates thirty years of age and over -- generally upper level managers, professionals and technicians.[17] These types of workeers are essentially not those about which the respondents to the surveys reported here were queried.

Taken together, these five considerations lead us to view the failure of the equations in our regression analyses to be predictive with a good deal less than total surprise.

CONCLUSION

It is evident that our respondent workers and employers receive or offer less training, respectively, than is reported by CPS respondents. In part the results differ because our sample of workers is less highly educated than those of the CPS, and, as Tierney has shown, college graduates receive disproportionate quantities of company training among the groups sampled by the CPS. These national samples of workers are evidently not in jobs, in any large numbers, for which employers feel their employees need

[17] See Michael Tierney, "Trends in Company Training Programs in National Perspective," University of Pennsylvania Graduate School of Education, 1982 (mimeo). Employers tell us, in a series of 20 case studies during 1982-1983, that the proportions reflect the different needs for training of the white-collar and blue-collar occupations.

training very much beyond the training they bring with them from their formal educations and previous job experiences. Our employer respondents, meantime, offer relatively little company training because they hire workers in a market that is well stocked with "redundant" skilled workers of all kinds.